FISHERY RESEARCH

Salmon Spawning Ground Surveys, 1989-92
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ABSTRACT

The numbers of chinook *(Oncorhynchus tshawytscha)* and sockeye (O. *nerka)* salmon returning to waters within the state of Idaho from 1989 through 1992 were indexed by enumerating the numbers of salmon redds constructed in selected areas. The areas surveyed represent a large portion of available salmon spawning habitat. Surveys of spawner carcasses also were conducted while counting salmon redds. The purpose of the carcass surveys was to collect length data for age composition determinations and to determine the sex composition of annual escapements. A review of historic redd count data was completed to ensure accuracy and consistency in reporting for each trend area. All data for the years 1957-88 were reviewed, and numbers published in prior reports were corrected when reporting errors were detected.

Numbers of total spring and summer chinook salmon redds counted in all Salmon River drainage trend areas remained at depressed levels from 1989 through 1992. For the period 1989-92, the total number of chinook salmon redds counted averaged 1,004. For comparison, an average of 6,627 total redds was counted annually during the period 1960-68.

The average total number of spring chinook salmon redds counted in Clearwater River drainage natural spawning areas for 1989-92 was 24, which is 52% less than the 1984-88 average count and 78 % less than the 1966-76 average count. The average number of redds for Clearwater River drainage hatchery-influenced trend areas (combined Lochsa and South Fork Clearwater drainages) was 61 % less than the 1984-88 average.

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INTRODUCTION

Each year chinook *Oncorhynchus tshawytscha* and sockeye O. *nerka* salmon return from the ocean to spawn in Idaho's streams. Effective management of anadromous salmon resources requires annual monitoring of the escapement into spawning areas. In Idaho it is especially difficult to enumerate all salmon returning to each of the spawning areas due to the vast geographic area used by these fish and limited access to the spawning habitat.

In response to the difficulty of quantifying total spawner escapement to each tributary, the Idaho Department of Fish and Game (IDFG) developed a program to index annual spawning escapements by enumerating salmon redds in selected areas. Areas surveyed represent a large portion of available chinook salmon spawning habitat. The number of redds counted in these areas provides an index of the annual spawning escapement. Time-series trends in escapement and production can be assessed from the redd count data. Spawner carcass surveys are also conducted while making redd counts. The purpose of the carcass surveys is to collect length data for age composition determinations and to determine the sex composition of the annual escapement. Marked fish are noted, and the snouts of all adipose-clipped salmon are collected during the carcass surveys. The adipose clip indicates the fish was coded wire-tagged prior to release.

Chinook salmon redd counts in Idaho were made as early as 1947 (Zimmer 1950, Schoning 1953). However, consistent trend counts, for existing populations with the longest history of counts, date back to 1957. Since 1957, the redd count program was expanded to include additional spawning areas to support expanded monitoring activities and management needs.

In this report, redd counts from 1957 through 1992 are made available for trend analysis and management and research use. White and Cochnauer (1989) reported redd counts made in 1988, and summarized 1957-88 counts. Prior to publishing 1989 and subsequent years' data, all historic redd count data was re-examined to verify its accuracy. Inadvertent errors made in reporting 1957-88 counts in previous reports have been corrected. Although the focus of this report is to document indexed spawning escapements for 1989-92, it also represents the most consistent reporting, on an annual basis since 1957, of redds counted in each trend area. Additionally, length-frequency and sex composition information is reported for the years 1989-92.

OBJECTIVES

To monitor chinook and sockeye salmon spawning escapements in trend areas and determine sex and age composition of selected runs.

METHODS

Chinook Salmon

Areas where chinook salmon redds are counted have been established on streams in the Clearwater River and Salmon River drainages of Idaho. The purpose of counting redds is to index annual spawning escapements and identify general trends in spawning escapements. Redd counts are reported for trend areas. Trend areas are those areas which are important production areas for various stocks and represent a large portion of available spawning habitat. A trend area may be divided into a number of separate transects, each of which is counted. Trend area and transect boundaries generally have remained constant from year to year. Count methods used and trend area boundary changes made from 1957-92 are described in Appendix A.

Single peak-count surveys are made over each trend area each year. The surveys are timed to coincide with the period of maximum spawning activity on a particular stream; therefore, each transect is assigned a target count-time window based on historic observations. Redd count observations are made using low-flying fixed-wing aircraft, helicopters, or ground surveys conducted on foot, depending on the best visual technique for a particular trend area. IDFG has developed and implemented standardized procedures for counting chinook salmon redds (Hassemer, in progress). The consistency and accuracy of redd counts is maintained over time by following the standard procedures. Also, biases caused by observer changes and hydrologic events can be minimized.

Chinook salmon redd count trend areas are classified as either wild (not influenced by plants of hatchery-reared fish), natural, or hatchery-influenced. This separation, based on the origin or rearing history of the fish, was first used for counts made in 1986 (Hall-Griswold and Cochnauer 1988). The Salmon River drainage contains five wild spring chinook and five wild summer chinook salmon trend areas. Releases of hatchery-reared spring chinook salmon have been made in the vicinity of three of the five wild summer chinook salmon trend areas (Lower Salmon River, Lower Valley Creek, Lower East Fork). It is believed the wild summer chinook and hatchery-influenced spring chinook salmon do not mix as spawning adults in these areas. In the Clearwater River drainage, the Selway drainage is classified as natural (the run was supplemented with non-endemic wild and hatchery fish), and the Lochsa and South Fork Clearwater drainages are classified as hatchery-influenced.

In 1985, additional redd count transects were established in the Salmon River drainage. These transects are not included with the historic trend areas and are categorized as nontraditional trend areas. Counts from these areas will be used for comparisons in future years. The number of nontraditional trend areas may change in the future as dictated by management and research needs.

Spawner carcass surveys are conducted on selected streams to determine the sex ratio and length-frequency distribution of returning adults. Length-frequency

information is used to determine the age composition of the run. Also, returning adults intercepted at weirs on the South Fork Salmon River, East Fork Salmon River, at Sawtooth Hatchery in the Salmon River drainage, and Red River in the Clearwater drainage are sexed and measured.

Sockeye Salmon

Sockeye salmon redd counts were conducted in 1989 on Redfish Lake, in the upper Salmon River drainage. The trend area, where redd counts have been made since 1981, consists of approximately 0.8 km of shoal near Sandy Beach on the eastern shore. In 1989, counts were made on October 9, 13, and 19.

A temporary weir for counting returning adults had been constructed on the lake outlet from 1985 through 1987. The weir was not put in place in 1989. In 1990, no sockeye salmon had been counted across Lower Granite Dam, the last enumeration point on the Snake River; therefore, no redd counts were made.

Snake River sockeye salmon were petitioned for consideration of listing under the Endangered Species Act in 1990 (the stock was listed as endangered in December 1991). In response to the critical status of the stock and Endangered Species Act concerns, a weir was installed in 1991 and 1992 and all returning sockeye salmon were trapped for development of a captive broodstock program.

Changes Relative to Previous Reports

A review of the historic redd count data was completed to ensure accuracy and consistency in reporting for each trend area. Some trend areas are characterized by counts on several transects and a combination of count methods (aerial and ground). Also, some transects' boundaries have been modified over the years. All data for the years 1957-88 were reviewed, and numbers published in past reports were corrected when reporting errors were detected. These changes were made so the counts now represent, as best possible, the same transect(s) and count method(s) from year to year. In some instances, consistent count methods were not used from year to year. Changes or corrections to redd counts reported in the most recent redd count report (White and Cochnauer 1989) are described in Appendix A. Also, changes in count methods used or transect boundaries for each trend area are noted in Appendix A. The transects and count methods for all current standard trend areas are listed in Appendix B.

In Appendix A, White and Cochnauer's (1989) report is referred to as the "previous redd count report," or counts from their report are referred to as "previously reported counts." Counts of redds incorrectly reported in White and Cochnauer had also been incorrectly reported in a number of previous reports. These errors represent the small number of typographical and transcription errors that occurred over the 32-

year series of reports. Most of the changes to previously reported counts that were made for this report were done so the annual counts reported are those most comparable to other years' counts. The reader is reminded that these counts are an index of adult escapement, not a total accounting of redds constructed.

RESULTS

Salmon River Drainage

Numbers of total spring and summer chinook salmon redds counted in all Salmon River drainage trend areas remained at depressed levels from 1989 through 1992. For the period 1989-92, the total number of spring and summer chinook salmon redds counted averaged 1,004 (Tables 1-4). For comparison, an average of 6,627 total redds were counted annually during the period 1960-68. The period 1960-68 is used for comparison as it represents an early series of redd counts made once standard transects and counting methods were established, and prior to the major decline in numbers of returning adults. A general decline in numbers of redds counted in summer chinook trend areas began in 1961. Access to Salmon River drainage spawning areas has not been precluded since the redd count program was initiated. The 1989-92 average annual count for both spring and summer chinook salmon combined represents only 15.2% of the 1960-68 average.

The numbers of redds counted from 1957-69 do not accurately index total adult salmon escapement to the state during this period. Sport harvest during these years ranged from 6,500 (1968) to 39,000 (1957) chinook salmon (no season was opened in 1965) (Kiefer 1992). It is reasonable to assume that not all the additional redds constructed in the absence of harvest would be observed in trend areas. However, since the trend areas surveyed include the majority of chinook salmon spawning habitat, it is likely a large number of these potential redds would have been counted, thus increasing the redd counts during the period.

Harvest levels from 1970-78 were much less than in previous years, ranging from 1,500 (1974) to 9,500 (1973) chinook salmon, with no sport harvest in 1975 and 1976. Beginning in 1979, no general sport harvest seasons have been opened in the state. The numbers of redds counted from 1957-78 provide an index of adult spawners after harvest, whereas redd counts after 1978 more accurately index total adult returns to the spawning areas.

The total redds counted in both wild (Tables 2 and 3) and hatchery-influenced (Tables 1 and 4) trend areas were similar to the low numbers of redds counted in each trend area from 1979 through 1984, the period of lowest counts on record. Numbers of redds counted in both wild and hatchery-influenced trend areas demonstrated an increasing trend from 1984 through 1988 (Figure 1). Total redds counted in wild and hatchery-influenced trend areas declined abruptly in 1989. The average total number of redds counted in spring and summer chinook salmon wild trend areas remained at

a critically depressed level from 1989-92, and averaged 375 redds over the four years (Tables 2 and 3); 13.3% of the 1960-68 average. The average number of redds counted in hatchery-influenced trend areas for 1989-92 was 629 (Tables 1 and 4); 16.5 % of the 1960-68 average.

The number of wild spring chinook salmon redds counted each year (Table 2, Figure 2) for 1989-92 averaged 62% less than the previous 5-year (1984-1988) average count and 89% less than the 1960-68 average. The number of spring chinook salmon redds counted each year in hatchery-influenced trend areas (Table 1, Figure 2) was 45% less than the 1984-1988 average and 94% less than the 1960-68 average. Spring chinook salmon redd counts in hatchery-influenced trend areas (Table 1) are influenced by trapping at the Sawtooth Hatchery and East Fork Salmon River weirs. The Sawtooth weir and trap was first operated in 1981, and the East Fork Salmon River weir and trap was first operated in 1984. All marked fish trapped at the weirs are spawned at the Sawtooth Hatchery. Two-thirds of the unmarked fish trapped are retained and spawned at the Sawtooth Hatchery; the remaining one-third are released above the weirs to spawn naturally. When hatchery brood needs are met, all unmarked fish are released above the weirs. Numbers of spring chinook salmon trapped and released at the Sawtooth Fish Hatchery and East Fork Salmon River facilities are listed in Table 5.

The number of wild summer chinook salmon redds counted each year (Table 3, Figure 3) from 1989-92 averaged 33% less than the 1984-88 average and 83% less than the 1960-68 average. The number of summer chinook salmon redds counted each year in natural and hatchery-influenced summer chinook salmon trend areas (Table 4, Figure 3) averaged only 8% less than the 1984-88 average and 65% less than the 1960-68 average. Summer chinook salmon redd counts in hatchery-influenced trend areas of the South Fork Salmon River have been influenced by weir operation since 1980. All marked fish trapped at the weir are spawned at the McCall Hatchery. Two-thirds of the unmarked fish trapped are retained and spawned at the hatchery, the remaining one-third are released above the weir to spawn naturally. When hatchery brood needs are met, all unmarked fish are released above the weirs. Numbers of summer chinook salmon trapped and released at the South Fork Salmon River weir are listed in Table 5.

Redd counts in nontraditional redd count areas are reported in Table 6. In general, few redds were counted in these areas, with no redds counted in many transects. The greatest change in number of redds counted was observed in the Sulphur Creek nontraditional area, where the number of redds counted ranged from 8-24 from 1989-91, and no redds were counted in 1992. This compares to 99 redds counted in 1988, the first year the area was surveyed. The nontraditional areas will be monitored in the future to evaluate rebuilding programs.

Few redds were counted in unclassified chinook salmon spawning areas from 1989 to 1992 (Table 7). In Camas Creek (Castle Creek to Hammer Creek transect), the number of redds counted for the period 1989-92 averaged 13, which is 90% less than the average number counted from 1960-68. Redds counted in Yankee Fork Salmon River trend areas were similarly depressed. In both the lower Yankee Fork

transect and the West Fork Yankee Fork transect, an average of 6 redds was counted from 1989-92. These counts are 92% and 96% less than the average number of redds counted in each transect, respectively, for the period 1960-68.

Chinook salmon redd counts were made in non-trend area streams and additional counts were made in some redd count trend areas in the Salmon River drainage during 1989. Counts were made in the Yankee Fork drainage, Bear Valley and Herd creeks (Table 8), and East Fork Salmon River (Table 9). Both aerial and ground count methods were used from 1989-92 in the upper Salmon River and Alturas Lake drainages. Two purposes of using the two count methods were to compare the numbers of redds counted using each method and provide ground count information as part of the Intensive Evaluation of Smolt Production project (Kiefer 1990, 1991). These counts are compared in Tables 10-13 for 1989-92, respectively.

Length-frequency and age composition data for spring and summer chinook salmon are included in Appendix C. Appendix C includes length-frequency data for spring chinook salmon trapped at the Sawtooth Fish Hatchery and East Fork Salmon River weirs and summer chinook salmon trapped at the South Fork Salmon River weir. Length-frequency data gathered during spawner carcass surveys on South Fork Salmon River, Johnson Creek, Secesh River/Lake Creek, and Big, Elk, Sulphur, Bear Valley, Capehorn, and Beaver creeks of the Middle Fork Salmon River drainage are also included.

Clearwater River Drainage

The average total number of spring chinook salmon redds counted in Clearwater River drainage natural spawning areas for 1989-92 was 24 (Table 14, Figure 4), 52% less than the 1984-88 average count. Also, the 1989-92 average count was 78% less than the 1966-76 average count. Redd counts were conducted in natural spawning trend areas beginning in 1966, although in some years during the 1966-76 period, not all transects were counted. In 1991, an aerial count was made over the mainstem of the Selway River, and 18 redds were counted (these redds are not included in Table 14 as the area is not part of the standard trend area).

The average number of redds counted in hatchery-influenced spawning areas from 1989-92 declined further from the 1984-88 average. The average numbers of redds counted in the Lochsa River and South Fork Clearwater River drainages from 1989-92 were each 61% less than the average count from 1984-88 (Table 15, Figure 5). The average number of redds for the combined Lochsa and South Fork Clearwater drainages was 61% less than 1984-88 average.

Counts of redds in the Red River trend area (Table 18) are influenced by a weir that has been operated just downstream of the South Fork Red River since 1987. Counts of redds in the Lochsa River drainage are influenced by a weir and trap constructed immediately below the confluence of White Sands and Crooked Fork creeks. This weir was first operated in 1989, and likely did not intercept all chinook

salmon passing the site as it was not in operation during the entire 1989 salmon migration period. In 1992, the weir was not in place and all chinook salmon trapped were voluntary swim-ins. Counts of redds in the Crooked River trend area are influenced by a weir that has been operated since 1990. Numbers of chinook salmon trapped and released above these three weirs are listed in Table 16.

Length-frequency and age composition data for spring chinook salmon intercepted at the Red River, Crooked River, and Powell (Lochsa River) weirs are listed in Appendix C.

Fewer redds were counted in Clearwater River drainage nontraditional trend areas from 1989-92 than were counted in 1987 or 1988 (Table 17). For 1989-92 the average total number of redds counted in these trend areas was 70% less than the 1987-88 average.

Sockeye Salmon

One redd was observed in the shoal area in 1989 (on October 19). No live sockeye salmon were observed in the area during any of the surveys. One adult female sockeye salmon was trapped at the Sawtooth Fish Hatchery weir in July and was released into Redfish Lake.

In 1991 four adult sockeye (3 male, 1 female) were captured at the weir and held until spawned at the Sawtooth Fish Hatchery. Only one adult (male) sockeye was trapped in 1992.

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Table 1. Numbers of spring chinook salmon redds counted in Salmon River drainage hatchery-influenced trend areas, 1957-1992.

YEAR	ALTURAS LAKE CREEK[a]	LEMHI RIVER	UPPER EAST FORK	UPPER SALMON RIVER	UPPER VALLEY CREEK	UPPER YANKEE FORK	TOTALS	FIVE YEAR AVERAGE
1992	2	15	10	51	1	1	80	
1991	3	55	21	83	2	0	164	
1990	0	80	NC	97	3	3	183	
1989	7	32	NC	102	23	7	171	243
1988	1	179	NC	146	12	1	339	
1987	9	155	NC	162	31	0	357	
1986	14	157	NC	134	13	15	333	
1985	7	93	NC	120	1	5	226	
1984	3	35	NC	71	6	NC	115	253
1983	27	46	121	161	8	0	363	
1982	9	149	28	42	1	0	229	
1981	4	115	76	404	2	4	605	
1980	7	25	6	47	6	0	91	
1979	29	146	57	205	25	18	480	1264
1978	303	703	841	1707	141	33	3728	
1977	85	443	168	698	18	6	1418	
1976	16	227	75	378	NC	40	736	
1975	60	365	348	509	189	60	1531	
1974	42	237	346	338	127	54	1144	1482
1973	153	433	665	411	125	104	1891	
1972	143	473	448	748	182	115	2109	
1971	50	392	370	619	89	57	1577	
1970	68	344	468	432	202	67	1581	
1969	41	328	174	313	35	53	944	1905
1968	110	572	622	637	330	234	2505	
1967	74	786	614	943	253	250	2920	
1966	119	738	511	581	219	112	2280	
1965	101	433	138	472	204	77	1425	
1964	80	1038	405	706	199	146	2574	2184
1963	86	364	646	638	141	128	2003	
1962	138	1309	334	638	157	60	2636	
1961	30	1720	618	723	227	192	3510	
1960	33	1262	122	579	87	43	2126	
1959	18	468	75	486	23	10	1080	2067
1958	96	555	141	469	63	38	1362	
1957	110	719	61	1101	219	47	2257	

a Influenced by trapping at Sawtooth Hatchery site beginning 1981.
b Influenced by trapping at East Fork Weir beginning 1984.

Table 2. Numbers of spring chinook salmon redds counted in Salmon River drainage wild trend areas, 1957-1992.

YEAR	BEAR VALLEY CREEK	ELK RIVER	MARSH CREEK DRAINAGE	SULPHUR CREEK	UPPER BIG CREEK	TOTALS	FIVE YEAR AVERAGE
1992	41	57	65	5	22	190	
1991	47	54	40	26	13	180	
1990	62	42	57	22	20	203	
1989	15	35	44	2	30	126	386
1988	283	330	217	41	101	972	
1987	102	149	150	11	36	448	
1986	74	55	101	65	67	362	
1985	134	28	108	10	70	350	
1984	55	27	60	0	42	184	231
1983	56	38	33	8	27	162	
1982	39	9	40	3	7	98	
1981	60	23	63	7	22	175	
1980	15	8	9	2	NC	34	
1979	69	49	47	15	15	195	310
1978	184	208	270	64	95	821	
1977	129	86	98	5	9	327	
1976	76	61	48	14	22	221	
1975	215	169	201	50	77	712	
1974	130	108	210	30	28	506	754
1973	387	375	518	78	96	1454	
1972	221	212	312	71	60	876	
1971	108	173	281	58	32	652	
1970	334	302	456	93	68	1253	
1969	356	349	222	138	65	1130	1301
1968	574	483	466	142	90	1755	
1967	445	420	650	134	67	1716	
1966	534	525	406	142	123	1730	
1965	301	203	404	32	73	1013	
1964	576	425	709	49	51	1810	1576
1963	460	654	372	140	148	1774	
1962	484	426	341	78	223	1552	
1961	675	581	526	121	377	2280	
1960	386	346	299	39	155	1225	
1959	381	458	88	41	88	1056	1575
1958	312	359	262	131	129	1193	
1957	661	398	458	381	225	2123	

Table 3. Numbers of summer chinook salmon redds counted in Salmon River drainage wild trend areas, 1957-1992.

YEAR	LOON CREEK	SECESH RIVER LAKE CR.	LOWER SALMON RIVER	LOWER VALLEY CREEK	LOWER EAST FORK	TOTAL	FIVE YEAR AVERAGE
1992	22	125	26	6	16	195	
1991	16	112	68	3	23	222	
1990	NC	55	52	9	19	135	
1989	16	78	77	26	51	248	300
1988	5	155	150	33	85	428	
1987	23	121	200	59	62	465	
1986	21	115	104	16	41	297	
1985	28	105	82	1	9	225	
1984	4	xx	51	15	7	77	205
1983	7	98	111	28	27	271	
1982	23	65	39	8	19	154	
1981	30	53	75	17	43	218	
1980	9	20	11	4	0	44	
1979	NC	20	NC	15	33	68	282
1978	29	91	359	219	NC	698	
1977	62	27	94	63	136	382	
1976	31	17	44	43	39	174	
1975	32	10	45	80	38	205	
1974	47	21	40	45	49	202	402
1973	78	62	224	77	138	579	
1972	150	87	412	39	161	849	
1971	79	80	220	147	149	675	
1970	43	63	150	41	123	420	
1969	110	104	120	22	138	494	657
1968	135	58	223	63	235	714	
1967	164	140	365	79	234	982	
1966	49	140	390	184	216	979	
1965	166	134	201	57	131	689	
1964	361	181	415	71	306	1334	1030
1963	261	163	195	50	265	934	
1962	157	281	467	115	195	1215	
1961	131	191	356	158	559	1395	
1960	334	510	811	137	403	2195	
1959	123	240	352	70	240	1025	2058
1958	193	355	460	47	345	1400	
1957	425	328	2533	331	656	4273	

a "xx" = count not comparable to other years.

Table 4. Numbers of summer chinook salmon redds counted in Salmon River drainage natural (Johnson Creek) and hatchery-influenced (South Fork Salmon River) trend areas, 1957-1992.

YEAR	JOHNSON CREEK	S. FORK SALMON RIVER	TOTAL	FIVE YEAR AVERAGE
1992	76	685	761	
1991	64	393	457	
1990	56	386	442	
1989	42	217	259	567
1988	137	718	855	
1987	72	752	824	
1986	53	289	342	
1985	75	323	398	
1984	17	165	182	264
1983	63	185	248	
1982	37	111	148	
1981	45	126	171	
1980	24	116	140	
1979	36	115	151	227
1978	113	251	364	
1977	81	226	307	
1976	68	241	309	
1975	69	238	307	
1974	107	218	325	517
1973	271	586	857	
1972	220	567	787	
1971	183	421	604	
1970	130	527	657	
1969	273	636	909	800
1968	127	515	642	
1967	286	902	1188	
1966	110	980	1090	
1965	116	656	772	
1964	310	1124	1434	1301
1963	266	1057	1323	
1962	295	1589	1884	
1961	201	1058	1259	
1960	486	2290	2776	
1959	278	1305	1583	1991
1958	82	1206	1288	
1957	319	2732	3051	

Table 5. Numbers of adult and jack chinook salmon intercepted at the Sawtooth Fish Hatchery, East Fork Salmon River, and South Fork Salmon River and numbers of salmon released above the weirs to spawn naturally, 1989-92.

	Year											
	1989			1990			1991			1992		
	Female	Male	Jack	Female	Male	Jack	Female	Male	Jack	Female	Male	Jack
Sawtooth Fish Hatchery (Upper Salmon River) - Spring Chinook												
Trapped at Weir	216	260	412	503	873	112	267	231	68	165	196	26
Released Above Weir	73	104	293	167	390	58	94	95	49	56	77	12
East Fork Salmon River - Spring Chinook												
Trapped at Weir	30	76	22	30	103	12	17	39	6	13	38	14
Released Above Weir	10	46	13	10	71	7	9	31	3	6	25	9
South Fork Salmon River - Summer Chinook												
Trapped at Weir	249	194	495	380	561	28	235	156	821	1,151	1,492	205
Released Above Weir	71	77	89	116	197	5	73	44	171	723	983	125

Table 6. Numbers of chinook salmon redds counted in Salmon River drainage nontraditional trend areas, 1985-1992.

Stream	Section	Year 85	86	87	88	89	90	91	92
Upper Salmon River System									
Alturas Lake Creek	Cabin Cr. bridge to diversion dam	0	0	1	0	1	0	0	2
	Diversion dam to Alturas Lake	0	0	0	2	3	2	0	1
	Alturas Lake inlet to Alpine Creek	1	1	5	0	0	0	0	2
Salmon River	Breckenridge diversion dam to mouth of Pole Creek	4	0	1	2	0	NC	NC	0
	Mouth of Pole Creek to headwaters	0	0	0	0	0	NC	NC	0
Pole Creek	Mouth to diversion screen	1	0	0	0	0	2	0	0
	Fish screen to road crossing at upper end of meadow.	-	-	-	-	-	3	0	0
Middle Fork Salmon River System									
Middle Fork Salmon river	Mouth to mouth of Loon Creek	-	-	1[a]	-[b]	0	0	0	0
Sulphur Creek	Ranch upstream to island	-	-	-	99	8	18	24	0
Main Salmon River Canyon									
Chamberlain Creek	Mouth of West Fork to Flossie Creek	9	NC	12	20	14	17	NC	17
West Fork Chamberlain Creek	Mouth to Game Creek	16	NC	12	6	30	35	NC	22
East Fork Salmon River System									
Herd Creek	Bennett Ranch to mouth of East Pass Cr.	1	6	-	-	-	-	-	-
East Fork of South Fork Salmon River (EFSF)									
Johnson Creek	Mouth of Whiskey Creek to head of canyon	-	-	0	0	15	0	12	16
Sand Creek	Sand Creek from mouth to bridge	-	-	0	0	0	0	0	0
EFSF	Yellow Pine to Sugar Creek	-	-	-	-	-	-	-	23
	Profile Creek to Tamarack Creek	-	-	-	-	-	-	-	9

[a] Mouth of Loon Creek to mouth of Big Creek.
[b] Forest fire prevented aerial survey in 1988.

Table 7. Numbers of chinook salmon redds counted in Salmon River drainage unclassified trend areas, 1960-1992. Camas Creek is defined as a wild stream and Yankee Fork as a hatchery-influenced system. Ground counting method was used except as indicated (A = air count, G = ground count for years where two methods were used). "NC" indicates transect was not counted.

YEAR	Camas Creek[a]	Camas Creek[b]	Lower Yankee Fork[c]	West Fork Yankee Fork[d]
1992	7(A)	NC	9(A)	3(A)
1991	11 (A)	NC	6(A)	4(A)
1990	3(A)	NC	10(A)	7(A)
1989	29(A)	NC	0(A)	8(A)
1988	NC	NC	2(A)	16(A)
1987	32(A)	NC	5(A)	12(A)
1986	11 (A)	0(A)	2(A)	6(A)
1985	21 (A)	0(A)	0(A)	1(A)
1984	6(A)	5(A)	NC	0(A)
1983	26(A)	12(A)	0(A)	7(A)
1982	29(A)	4(A)	1(A)	0(A)
1981	61	4(A)	16(A)	19
1980	11	6	0(A)	2
1979	13	2	NC	13
1978	102	46	27	98
1977	65	19	12	37
1976	21	40	5	11
1975	98	30	35	55
1974	132	40	28	20
1973	176	182	71	86
1972	123	88	78	117
1971	69	51	41	31
1970	49	37	79	112
1969	50	44	44	17
1968	164	NC	97	284
1967	109	NC	65	283
1966	118	NC	132	210
1965	22	22	63	93
1964	177	102	54	78
1963	151	NC	92	142
1962	124(G),61(A)	89(A)	68(G),32(A)	127(G),33(A)
1961	142	NC	59(G),31(A)	59(G),44(A)
1960	112	NC	43A	15

a Castle Creek to Hammer Creek

b South Fork Camas Creek to Castle Creek, transact not counted after 1986

c 1960-62: mouth to Jordan Creek; 1963-78: Pole Flat Forest Camp to Jordan Creek; 1980- 85: Pole Flat Forest Camp to West Fork Yankee Fork; 1986-92: Polecamp Creek to Jordan Creek

d 1961-62 and 1986-91: mouth to Cabin Creek; 1977-85: mouth to Deadwood Creek: 1960 and 1963-76: mouth to Lightning Creek

Table 8. Numbers of chinook salmon redds counted in various Salmon River drainage streams, 1989. Counts were performed by personnel from the Shoshone-Bannock Tribes.

Date	Stream	Section	Redds
8/24	Yankee Fork	1	0
	Salmon River	2	0
		3	0
		4	11
		5	5
8/24	Jordan Creek		0
9/18	West Fork Yankee FK.		6
8/23	Bear Valley Cr.	2	7
		3	9
		4	0
		5	0
		6	0
		7	1
8/25	Herd Creek		14

Table 9. Counts of spring chinook salmon redds and adults in the East Fork Salmon River, 1989. Counts were made by Sawtooth Hatchery personnel.

Date	Stream Section[a]	Redds	Fish
7/21	Trap Section	0	3
	Middle Section	0	0
	Herd Cr. Section	0	0
8/9	Trap Section	0	6
	Middle Section	0	0
	Herd Cr. Section	0	4
8/16	Trap Section	7	7
	Middle Section	2	2
	Herd Cr. Section	0	0
8/27	Trap Section	5	8
	Middle Section	-	-
	Herd Cr. Section	-	-
8/30	Trap Section	25	28
	Middle Section	15	17
	Herd Cr. Section	3	11

[a] Trap section = 1.5 miles, middle section = 2 miles, Herd Cr. section = 2 miles.

Table 10. Comparison of aerial and ground chinook salmon redd counts in the upper Salmon River drainage, 1989. Aerial counts were conducted on September 1; vertical bar separating counts indicates same stream section.

GROUND COUNTS			AERIAL COUNTS	
DATE	SECTION	REDDS	REDDS	SECTION
Upper Salmon River				
9/7	Sawtooth weir to Williams Cr.	32	30	Sawtooth weir to Hell Roaring Cr.
9/7	Williams Cr. to Fisher Cr.	39		
9/7	Fisher Cr. to Alturas Lk. Cr.	22	10	Hell Roaring Cr. to Alturas Lk. Cr.
9/7	Alturas Lk. Cr. to Breckenridge Diversion	5	1	Alturas Lk. Cr. to Breckenridge Diversion
9/7	Breckenridge Diversion to Pole Creek	2	0	Breckenridge Diversion to Pole Creek
9/3	Pole Creek to Frenchman Cr.	4	0	Pole Creek to Hwy. 75 Bridge
Alturas Lake Creek				
9/7	Alturas Lk. Cr . Mouth to Diversion	14	7	Alturas Lk. Cr Mouth to 2nd Bridge
			1	2nd Bridge to Diversion
9/7	Alturas Lk. Cr. Diversion to Alturas Lake	1	3	Alturas Lk. Cr. Diversion to Perkins Lake
Pole Creek				
9/3	Pole Creek Mouth to Diversion	0	0	Pole Creek mouth to Fish Screen

Table 11. Comparison of aerial and ground chinook salmon redd counts in the upper Salmon River drainage, 1990. Aerial counts were conducted on September 7-8; vertical bar separating counts indicates same stream section. ("NC" indicates no count.)

GROUND COUNTS			AERIAL COUNTS	
DATE	SECTION	REDDS	REDDS	SECTION
Upper Salmon River				
9/3	Sawtooth weir to Williams Cr.	38	50	Sawtooth weir to Hell Roaring Bridge.
9/4	Williams Cr. to Fisher Cr.	28		
9/1	Fisher Cr. to Alturas Lk. Cr.	1	2	Hell Roaring Bridge. to Alturas Lk. Cr.
9/7	Alturas Lk. Cr. to Breckenridge Diversion	0	1	Alturas Lk. Cr. to Breckenridge Diversion
9/5	Breckenridge Diversion to Headwaters	0	NC	Breckenridge Diversion to Pole Creek
Alturas Lake Creek				
9/5	Alturas Lk. Cr . Mouth to Diversion	7	0	Alturas Lk. Cr Mouth to Diversion Dam
9/5	Alturas Lk. Cr. Diversion to Alturas Lake	4	2	Alturas Lk. Cr. Diversion Dam to Alturus Lake
Pole Creek				
9/5	Pole Creek Mouth to Diversion	0	2	Pole Creek mouth to Fish Screen

Table 12. Comparison of aerial and ground chinook salmon redd counts in the upper Salmon River drainage, 1991. Aerial counts were conducted on September 5-6; vertical bar separating counts indicates same stream section.

GROUND COUNTS			AERIAL COUNTS	
DATE	SECTION	REDDS	REDDS	SECTION
Upper Salmon River				
9/4	Sawtooth weir to Williams Cr.	32	39	Sawtooth weir to Hell Roaring Bridge.
9/4	Williams Cr. to Fisher Cr.	17		
9/4	Fisher Cr. to Alturas Lk. Cr.	3	4	Hell Roaring Bridge. to Alturas Lk. Cr.
9/4	Alturas Lk. Cr. to Breckenridge Diversion	2	0	Alturas Lk. Cr. to Breckenridge Diversion
Alturas Lake Creek				
9/4	Alturas Lk. Cr . Mouth to Diversion	3	3	Alturas Lk. Cr Mouth to Diversion Dam
9/4	Alturas Lk. Cr. Diversion to Alturas Lake	0	0	Alturas Lk. Cr. Diversion Dam to Alturus Lake
Pole Creek				
9/4	Pole Creek Mouth to Diversion	0	0	Pole Creek mouth to Fish Screen

Table 13. Comparison of aerial and ground chinook salmon redd counts in the upper Salmon River drainage, 1992. Aerial counts were conducted on September 1-2; vertical bar separating counts indicates same stream section.

GROUND COUNTS			AERIAL COUNTS	
DATE	SECTION	REDDS	REDDS	SECTION
Upper Salmon River				
9/?	Sawtooth weir to Williams Cr.	10	19	Sawtooth weir to Hell Roaring Bridge
9/?	Williams Cr. to Fisher Cr.	6		
			3	Hell Roaring Bridge to Alturas Lk. Cr.
9/?	Fisher Cr. to to Breckenridge Diversion	9	0	Alturas Lk. Cr. to Breckenridge Diversion
Alturas Lake Creek				
9/?	Alturas Lk. Cr . Mouth to Diversion	1	4	Alturas Lk. Cr Mouth to Diversion Dam

Table 14. Numbers of spring chinook salmon redds counted in Clearwater River drainage natural trend areas, 1966-1992.

YEAR	SELWAY RIVER	BEAR CREEK	RUNNING CREEK	WHITECAP CREEK	MOOSE CREEK	TOTALS	FIVE YEAR AVERAGE
1992	18	9	0	0	2	29	
1991	12	8	0	1	2	23	
1990	13	6	1	2	2	24	
1989	5	7	0	3	3	18	38
1988	38	10	2	5	7	62	
1987	36	9	4	6	8	63	
1986	30	10	NC	7	9	56	
1985	15	NC	NC	NC	NC	15	
1984	30	6	NC	6	7	49	44
1983	26	8	NC	4	6	44	
1982	38	8	NC	3	5	54	
1981	47	8	NC	4	6	65	
1980	40	7	1	3	4	55	
1979	21	3	0	2	4	30	90
1978	125	13	6	NC	17	161	
1977	97	18	2	1	23	141	
1976	58	14	3	4	15	94	
1975	21	5	NC	1	4	31	
1974	66	10	4	2	15	97	160
1973	261	26	21	7	32	347	
1972	175	25	11	8	13	232	
1971	55	14	8	NC	NC	77	
1970	65	19	10	4	NC	98	
1969	57	6	21	NC	NC	84	63
1968	16	7	4	NC	NC	27	
1967	22	7	NC	NC	NC	29	
1966	36	8	NC	NC	NC	44	

Table 15. Numbers of spring chinook salmon redds counted in Clearwater River drainage hatchery-influenced trend areas, 1967-1992.

YEAR	CROOKED FORK	BRUSHY FORK	LOCHSA RIVER DRAINAGE TOTAL	FIVE YR.	NEWSOME CREEK	CROOKED RIVER	RED RIVER	AMERICAN RIVER	SOUTH FORK DRAINAGE TOTAL	FIVE YR.	CLEARWATER RIVER DRAINAGE TOTAL	FIVE YR.
1992	22	1	23		0	NC	46	1	47		70	
1991	9	1	10		0	NC	5	1	6		16	
1990	16	4	20		0	10	66	2	78		98	
1989	8	9	17	27	4	3	45	1	53	78	70	105
1988	42	9	51		20	27	51	12	110		161	
1987	28	10	38		15	17	81	31	144		182	
1986	30	11	41		6	9	82	14	111		152	
1985	47	14	61		7	10	92	23	132		193	
1984	28	9	37	41	1	22	65	NC	88	111	125	152
1983	7	6	13		7	12	85	9	113		126	
1982	34	17	51		5	4	82	21	112		163	
1981	27	25	52		7	9	47	12	75		127	
1980	16	10	26		7	6	31	7	51		77	
1979	6	12	18	45	9	4	20	-	33	69	51	114
1978	37	25	62		22	17	52	-	91		153	
1977	51	15	66		26	21	50	-	97		163	
1976	33	13	46		5	13	15	-	33		79	
1975	22	4	26		6	33	20	-	59		85	
1974	22	6	28	45	-	5	12	-	17	22	45	66
1973	60	-	60		-	-	-	-	0		60	
1972	32	31	63		-	-	-	-	0		63	
1971	1	-	1		-	-	-	-	0		1	
1970	34	-	34		-	-	-	-	0		34	
1969	112	-	112	32	-	-	-	-	0	0	112	32
1968	15	-	15		-	-	-	-	0		15	
1967	0	-	0		-	-	-	-	0		0	

Table 16. Numbers of adult and jack spring Chinook salmon intercepted at the Red River, Crooked River, and Powell (Lochsa River) weirs, and numbers of salmon released above the weirs to spawn naturally, 1989-92.

	Year											
	1989			1990			1991			1992		
	Female	Male	Jack	Female	Male	Jack	Female	Male	Jack	Female	Male	Jack
Red River												
Trapped at Weir	49	50	5	16	35	2	7	10	1	16	18	5
Released Above Weir	14	20	2	12	31	2	3	4	0	10	12	4
Crooked River												
Trapped at Weir	Weir not operated.			10	17	2	5	13	2	94	121	13
Released Above Weir				9	17	1	5	12	2	86	10	10
Powell (Lochsa River)												
Trapped at Weir	44	83	27	70	107	2	5	21	7	133	131	6
Released Above Weir	44	83	27	55	105	2	3	13	6	0	0	0

Table 17. Numbers of spring chinook salmon redds counted in Clearwater River drainage nontraditional trend areas, 1987-92.

Stream	Section	Year 1987	1988	1989	1990	1991	1992
S.F. Red River		0	0	NC	NC	NC	NC
Crooked Fork Cr.	Mouth to Brushy Fork	12	12	0	-	-	-
	Brushy Fk. to Shotgun Cr.	36	59	7	-	-	-
	Shotgun Cr. to Boulder Cr.	4	5	0	-	-	-
	Boulder Cr. to Hopeful Cr.	NC	NC	NC	-	-	-
	Mouth to Hopeful Creek	-	-	-	6	10	32
Brushy Fork Cr.	Mouth to Twin Cr.	14	10	0	-	-	-
	Twin Cr. to Spruce Cr.	12	19	6	-	-	-
	Mouth to Spruce Creek	-	-	-	6	5	9
White Sand Creek	Mouth to Big Flat Cr.	NC	NC	NC	0	0	0
Lolo Creek	White Cr. bridge to uppermost K-dam	31	31	15	27	11	14
Total		109	136	28	39	26	55

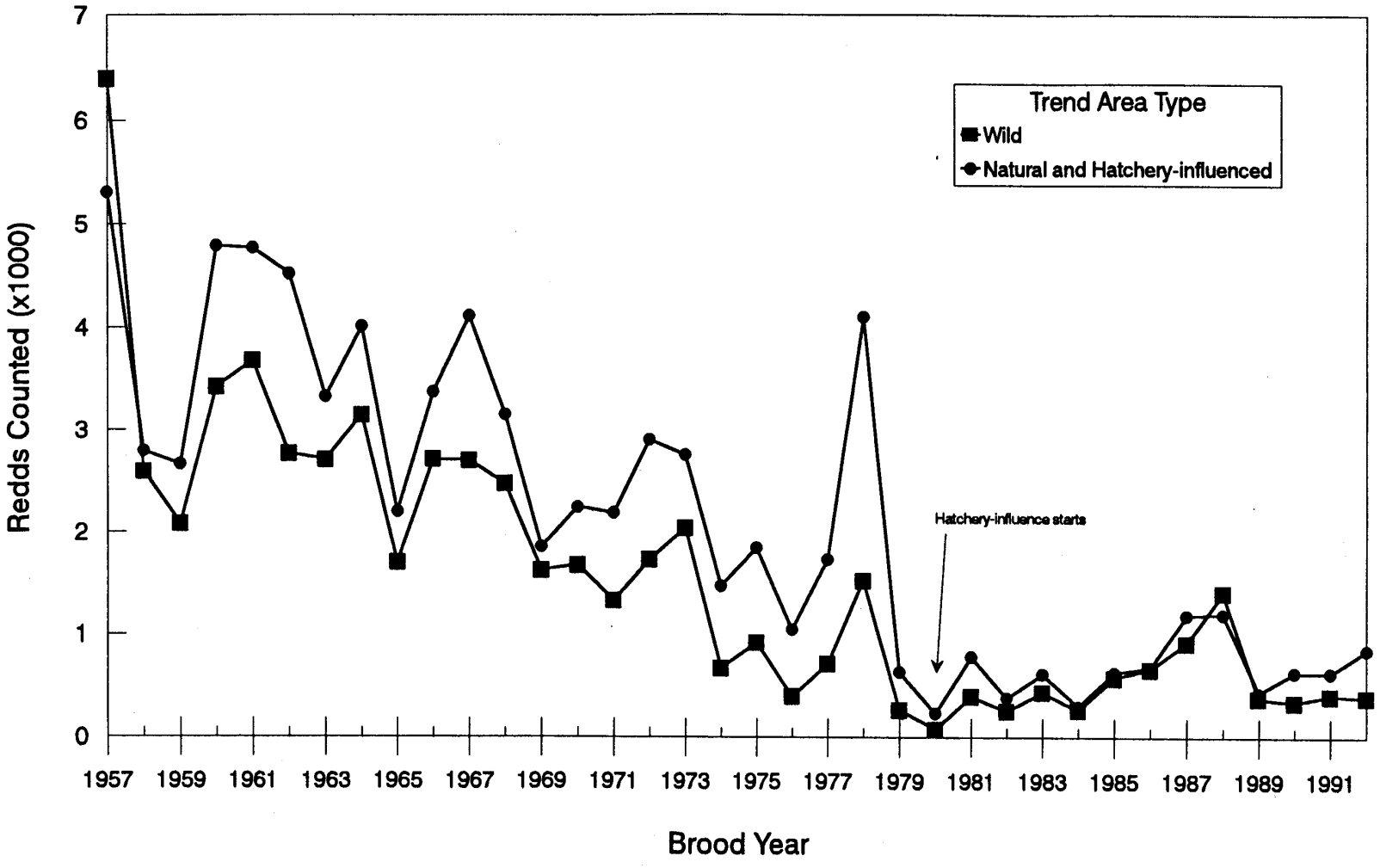


Figure 1. Numbers of combined spring and summer chinook salmon redds counted in Salmon River drainage wild and natural/hatchery-influenced trend areas, 1957-92. Hatchery-influence in spring chinook salmon trend areas began in 1981, in summer chinook salmon trend areas began in 1980.

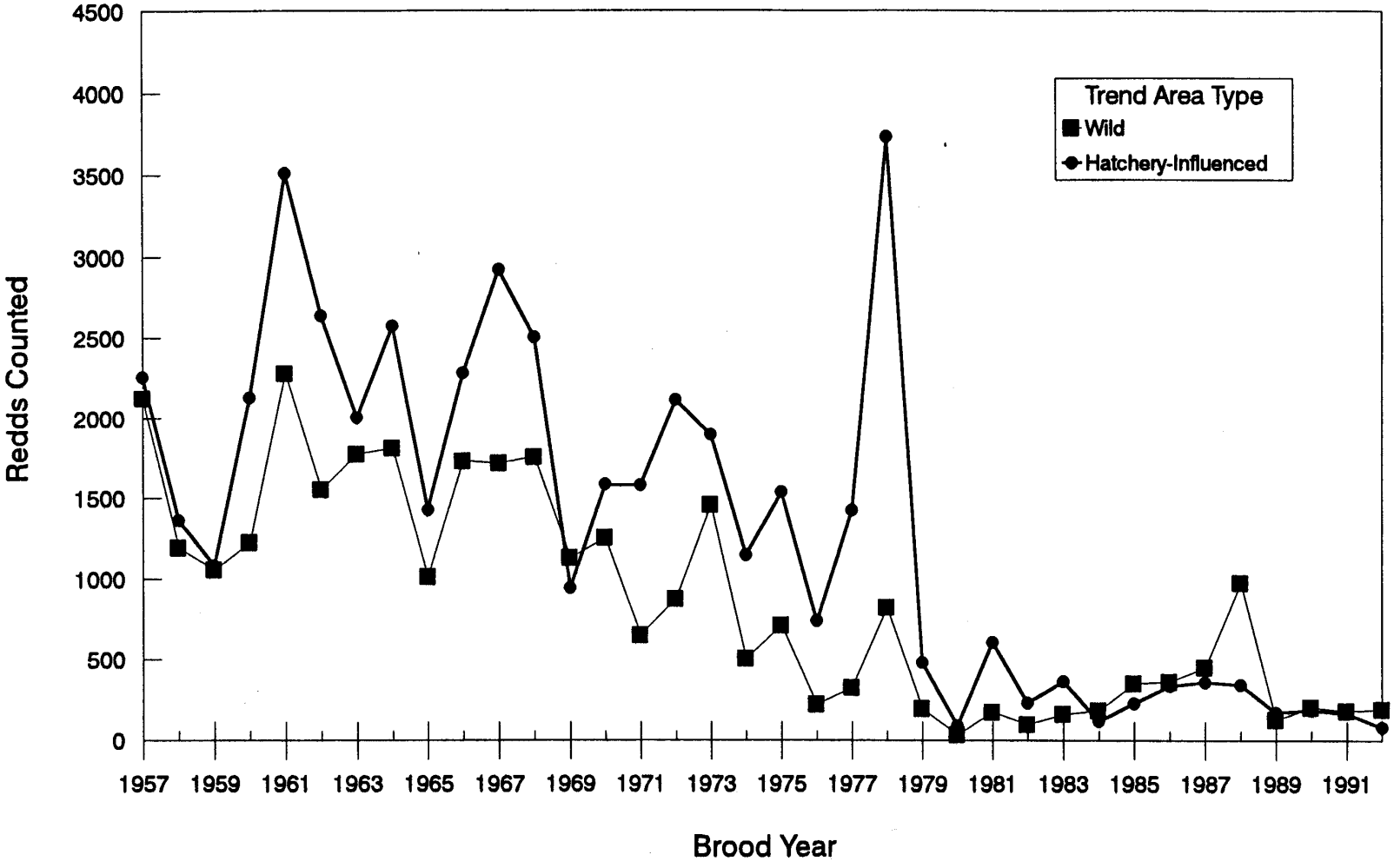


Figure 2. Numbers of spring chinook salmon redds counted in Salmon River drainage wild and hatchery-influenced trend areas, 1957-92. Hatchery-influence began in 1981 at the Sawtooth Hatchery weir and in 1984 at the East Fork Salmon River weir.

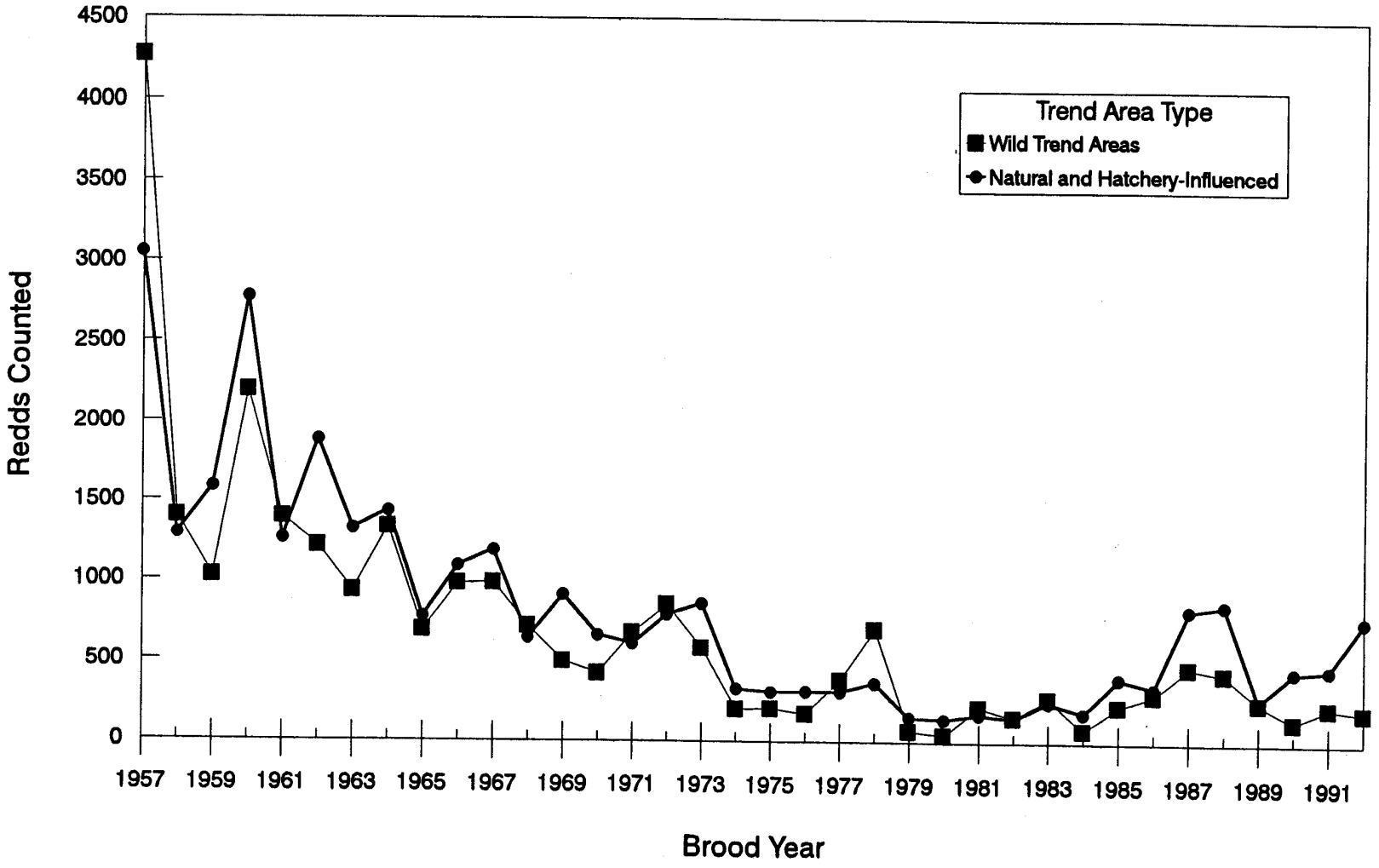


Figure 3. Numbers of summer chinook salmon redds counted in Salmon River drainage wild, natural, and hatchery-influenced trend areas, 1957-92. Hatchery-influence began at the South Fork Salmon River weir in 1980.

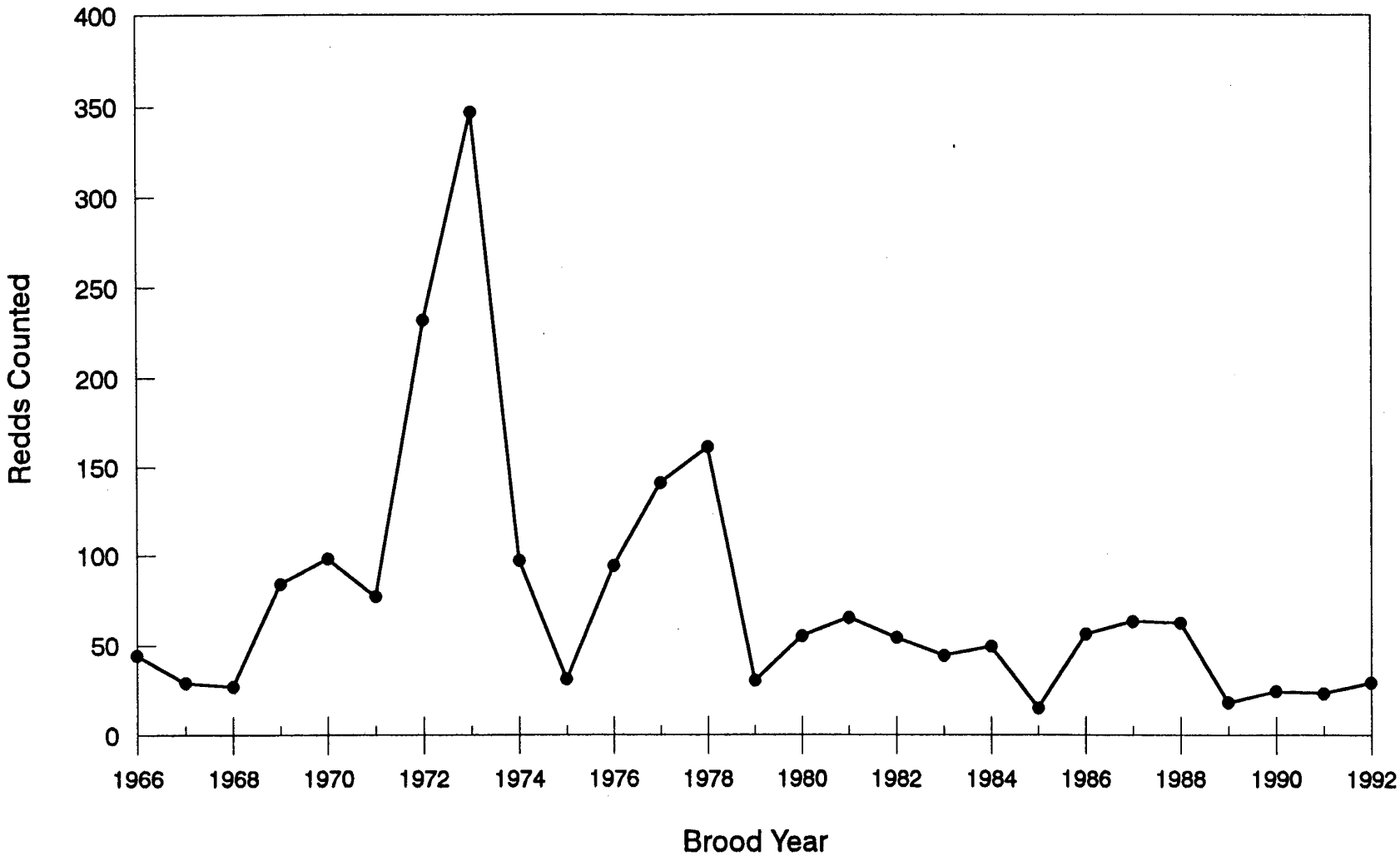


Figure 4. Numbers of spring chinook salmon redds counted in Clearwater River drainage natural trend areas, 1966-92.

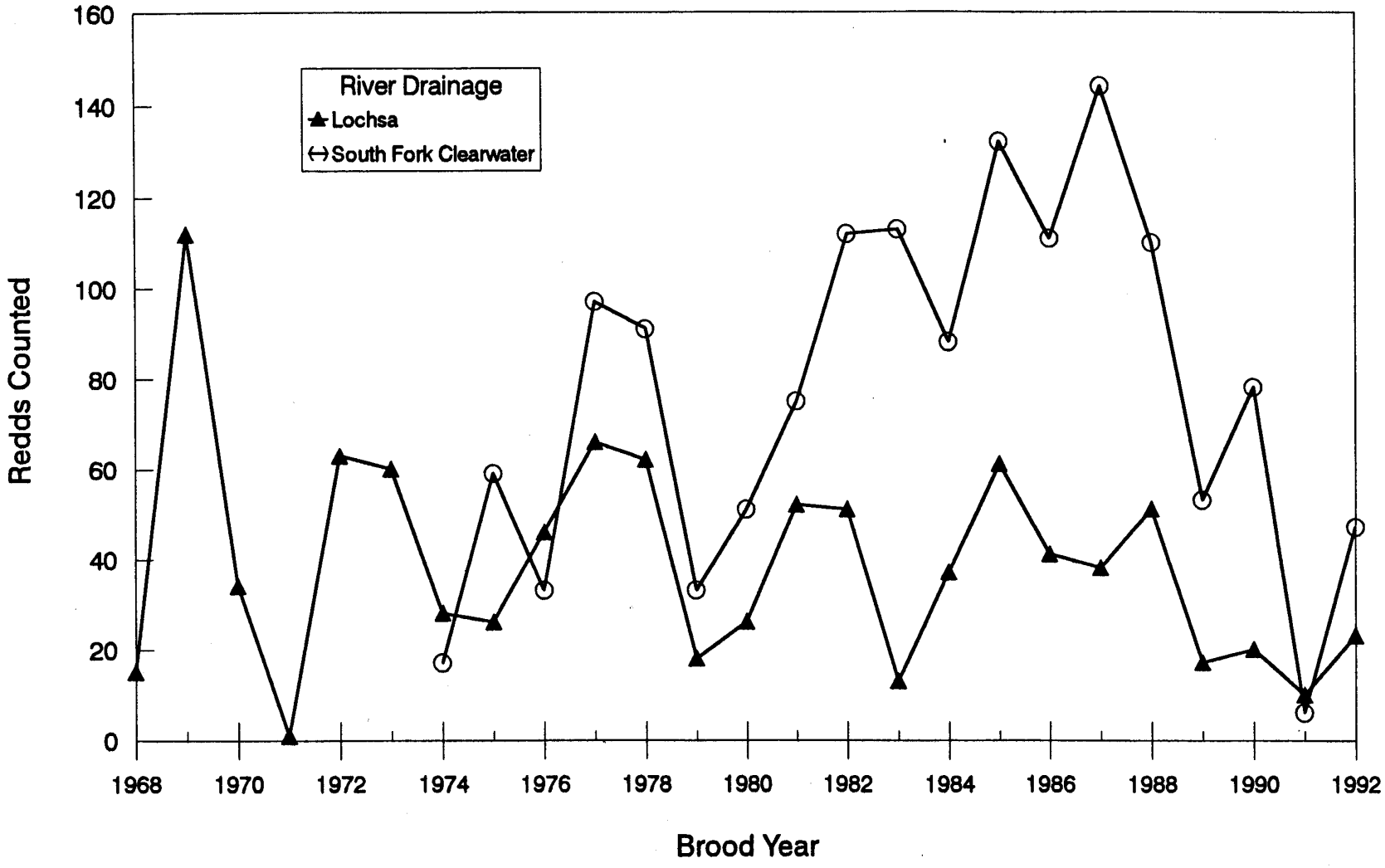


Figure 5. Numbers of spring chinook salmon redds counted in Clearwater River drainage hatchery-influenced trend areas, 1968-92

APPENDICES

APPENDIX A. Count method and transect changes for standard trend areas.

Year or Period	Description
TABLE 1 TREND AREAS.	
Alturus Lake Creek	
1957-59	Aerial counts, Alturus Lake Creek mouth upstream to Alturus Lake outlet. The previously reported 1958 count (107 *redds) had* been expanded to account for incomplete spawning.
1960-65 and 1967-80	Ground count, mouth to Cabin Creek bridge.
1966	Ground count, Cabin Creek bridge to lake outlet.
1981-92	Aerial count, mouth to Cabin Creek bridge.
Lemhi River	
1957-59	The *redd counts* now reported represent aerial counts, from the Lemhi store upstream to Leadore. The previously reported 1957 count (1,023 *redds) included* redds counted from the Lemhi River mouth upstream to the Lemhi store and a section of Hayden Creek; these areas are not part of the standard trend area. Also, the 1957 count had been expanded to account for incomplete spawning. The previously reported 1958 count (675 redds) included redds counted from the Lemhi River mouth upstream to the Lemhi store and a section of Hayden Creek, and was expanded to account for incomplete spawning. The previously reported 1959 count (524 redds) included redds counted from the Lemhi River mouth upstream to the Lemhi store.
1960-68, and 1976	Ground counts over three transacts: Hayden Creek to Maters Lane, Maters Lane to Cottam Lane, and Cottam Lane to Leadore (except 1961 when this transact ended at Canyon Creek rather than Leadore).
1969-75, and 1979, 1981	Ground counts over two transacts: Hayden Creek to Cottam Lane and Cottam Lane to Leadore. Same overall trend area as 1960-68.
1976	Ground count, Maiers Lane to Cottam Lane and Cottam Lane to Leadore. Aerial counts had been made from the Lemhi River mouth to the mouth of Hayden Creek (0 redds) and from Hayden Creek to Maiers Lane (0 redds). The previously reported count (241 redds) had included 14 redds counted in a section of Hayden Creek, not part of the standard trend area.
1977	Ground count, Maiers Lane to Cottam Lane and Cottam Lane to Leadore. The previously reported count (474 redds) had included 20 redds counted between the Lemhi River mouth and Maiers Lane (aerial count) and 11 redds counted in a section of Hayden Creek.
1980	Ground count, Cottam Lane to Leadore. No count from Hayden Creek to Cottam Lane. Entire section from Hayden Creek to Leadore was counted by air, six redds counted.
1982	Aerial count, Hayden Creek to Cottam Lane. Ground count, Cottam Lane to Leadore.

1983-92	Aerial counts over two transacts: Hayden Creek to Cottam Lane and Cottam Lane to Leadore.

Upper East Fork Salmon River

1957-59	Aerial counts, Big Boulder Creek upstream to Bowery Guard Station. The previously reported 1957 count (572 redds) had included 511 redds counted between Herd Creek and Big Boulder Creek (part of the lower East Fork Salmon River trend area). The previously reported 1958 count (427 redds) had included 272 redds counted between Herd Creek and Big Boulder Creek and 14 redds counted in a section of Herd Creek. The previously reported 1959 count (223 redds) had included 148 redds counted between Herd Creek and Big Boulder Creek.
1960	Ground count, Big Boulder Creek upstream to Germania Creek.
1961-81	Ground count from 3.5 miles below Big Boulder Creek upstream to Bowery Guard Station.
1982, 1983	Aerial count from 3.5 miles below Big Boulder Creek upstream to Bowery Guard Station.
1984-90	No counts. Trapping operations at the East Fork Salmon River weir began in 1984. During this time period counts were made over two transects (see Lower East Fork Salmon River).
1991	Aerial counts. Four redds were counted from the weir upstream to the upper end of the airstrip at Bowery Guard Station. Seventeen of the redds counted between the mouth of Herd Creek and the weir were assigned to the Upper East Fork Salmon River trend area (see Lower East Fork Salmon River for a description of the proration method used).
1992	Aerial counts were re-established over the transact counted from 1961-83.

Upper Salmon River

1957-59	Previously reported counts were 1957 - 1,118 redds, 1958 - 535 redds, and 1959 - 502 redds. These three years' counts had included redds counted in the Salmon River between the mouth of Valley Creek and the mouth of Redfish Lake Creek, which is part of the Lower Salmon River trend area. Also, the 1958 count had been expanded to account for incomplete spawning.
Note	From 1957-1984 the trend area included the Salmon River from the Sunny Gulch sheep bridge upstream to the Breckenridge diversion dam. In 1985 the lower boundary was moved upstream to the mouth of Redfish Lake Creek (the bridge had been removed). Generally, the trend area had been divided into three transacts: Sunny Gulch sheep bridge (or Redfish Lake Creek) upstream to the Sawtooth Ranger Station, Sawtooth Ranger station upstream to the U.S. 93 bridge, and the U.S. 93 bridge upstream to the Breckenridge diversion dam. In 1985, when construction of the Sawtooth Fish Hatchery weir was completed, the lower transact was subdivided into two transects: Redfish Lake Creek to Sawtooth weir and Sawtooth weir to the Sawtooth Ranger Station. Exceptions and count methods are described below.
1960	The previously reported count (720 redds) had included an aerial count from Sunny Gulch sheep bridge to the U.S. 93 bridge (610 redds) and a ground count from the U.S. 93 bridge to the Breckenridge diversion dam (43 redds). The reported number now includes a ground count from the Sunny Gulch sheep bridge to the U.S. 93 bridge (536 redds) rather than the aerial count. The ground count was selected to be consistent with counts in later years.

1961	The previously reported count (813 redds) had included a combination of aerial and ground counts made over similar transacts (double counting) and a transact from the U.S. 93 bridge upstream to Frenchman Creek. The number now reported includes ground counts over two transacts: Sunny Gulch sheep bridge to Sawtooth Ranger Station and Sawtooth Ranger Station to the U.S. 93 bridge. Fifty-four redds were counted between the U.S. 93 bridge and Frenchman Creek.
1962-65	Ground counts over the standard three transacts described in the note above.
1966	Ground counts over two transacts: Redfish Lake Creek upstream to Hell Roaring Creek and Hell Roaring Creek upstream to Alturus Lake Creek. The previously reported count (699 redds) had included a count from Alturus Lake Creek upstream to Frenchman Creek (118 redds).
1967-1980	Ground counts over the standard three transacts described in the note above.
1981-84	Counting method changed to aerial counts over the standard three transects described in the note above. The 1981 count (previously reported as 363 redds) had not included the count over the transacts from the Sawtooth Ranger Station to the U.S. 93 bridge (12 redds) and the U.S. 93 bridge to the Breckenridge diversion dam (29 redds).
1985-92	Aerial counts. The lower boundary of the trend area was moved upstream to Redfish Lake Creek. Also, beginning in 1985 the lower transact was subdivided at the Sawtooth Fish Hatchery weir (see note above). The previously reported count for 1985 (76 redds) did not include the count for Redfish Lake Creek to the Sawtooth weir (44 redds).

Upper Valley Creek

1957	Aerial count. The previously reported count (225 redds) had included a count on the East Fork of Valley Creek (6 redds), which is not part of the standard trend area.
1958	The previously reported count (75 redds) was from an aerial count. The number now reported is from a ground count, which is consistent with counts in later years.
1959	Ground count. The previously reported count (24 redds) had included one redd counted on the East Fork of Valley Creek.
1960-80	Ground counts. The previously reported 1960 count (83 redds) had not included the count on the section from Meadow Creek upstream to the East Fork of Valley Creek (4 redds). The previously reported 1969 count (350 redds) was incorrectly reported, the correct count is 35 redds.
1981-85	Aerial counts. In 1983 the section from Meadow Creek upstream to the East Fork of Valley Creek was not counted.
1986-92	Aerial counts. The upper boundary of the transact was moved downstream to the Buckskin mine site rather than ending at the East Fork of Valley Creek. In 1987 and 1988 the section from Meadow Creek upstream to the East Fork of Valley Creek was not counted.

Upper Yankee Fork Salmon River

1957-59	Aerial counts from the mouth of the West Fork Yankee Fork Salmon River upstream to the mouth of Tenmile Creek.
1960-78 and 1980-81	Ground counts from the mouth of Jordan Creek upstream to the mouth of Mackay Creek.

1979	Aerial count from the mouth of Jordan Creek upstream to the mouth of Mackay Creek.
1982-86	Aerial counts from the mouth of Jordan Creek upstream to the mouth of Mackay Creek.
1987-92	Aerial counts. In 1987 or 1988 the upper boundary of the transact was moved downstream from Mackay Creek to the mouth of Twelvemile Creek, the mouths of these two streams are in close proximity to one another.

TABLE 2 TREND AREAS

Bear Valley Creek

1957	The previously reported count (791 redds) had been increased by 130 redds to account for poor flying conditions.
1958	The previously reported count was 341 redds. This count had included a ground count from the dredge to Cub Creek rather than the aerial count. Also, the count over the section from Elk Creek to Fir Creek had been expanded to account for incomplete spawning. The reported number now represents all aerial counts.
1961	The previously reported count (629 redds) had not included the count over the uppermost transect.
1973	The previously reported count (287 redds) was incorrect, apparently a typographical error that carried over from previous reports. The correct count is 387 redds.
Method note	From 1957-86 aerial counts were made. From 1987 through 1989 the transact from Fir Creek to Elk Creek was counted from the ground, all other counts were made from the air. Beginning in 1990 all transects were counted from the ground.

Elk Creek

1958 and 1959	Previously reported counts were 1958 - 410 redds and 1959 - 516 redds. These previously reported counts included counts over a section of the West Fork of Elk Creek; this section is not part of the standard trend area. Also, the aerial counts for each year were adjusted upward to account for poor flying conditions (1959) and for unknown reasons (1958). For both years three transacts were counted as follows: aerial count from the mouth of Elk Creek upstream to Bearskin Creek, ground count from the mouth of Bearskin Creek upstream to Porter Creek, and an aerial count from the mouth of Porter Creek upstream to the mouth of West Fork Elk Creek.
1960-66	Three same transacts were counted and methods used as for the 1958-59 counts except that the upper transact, from the mouth of Porter Creek upstream to West Fork Elk Creek was counted from the ground.
1961	The correct count, 581 redds as indicated in the 1961 redd count report, had inadvertently been changed to 384 redds at some point during the succession of redd count reports.
1967-86	Two transacts were counted: an aerial count from the mouth of Elk Creek upstream to Bearskin Creek and a ground count from the twin bridges upstream to West Fork Elk Creek. The twin bridges are in the same approximate location as the mouth of Bearskin Creek.
1973	The correct count (375 redds) had previously been incorrectly reported as 369 redds.

1987 and 1988	The same transects were counted as for the period 1967-86, except that the count method for the lower transect was changed to a ground count. Ground counts have been made over all transects since 1987.
1989-92	The lower boundary of the lower transect was moved upstream from the mouth of Elk Creek to the Elk Creek Guard Station.

Marsh Creek Drainage

Note	The Marsh Creek drainage trend area includes transects on Marsh, Capehorn, Beaver, and Knapp creeks.
1957 and 1958	Marsh Creek, from Capehorn Creek upstream to Knapp Creek was counted from the ground, all other transects were counted from the air.
1959	All aerial counts. The previously reported count (95 redds) had included a count on Beaver Creek (7 redds) upstream of Winnemuca Creek, a section that is not part of the standard transect.
Method note	Ground count methods were used for all reported counts from 1960-1992. From 1960-62 aerial counts were made over some transects in addition to the ground counts. The counts made using aerial methods are not included in the reported numbers.
1960-62	The previously reported counts for these years (1960 - 316 redds, 1961 - 546 redds, 1962 - 345 redds) had included counts over a section of Marsh Creek from its mouth upstream to the mouth of Capehorn Creek. Counts over this additional section were subtracted from the previously reported counts since this section is not part of the standard trend area. Counts over this lower section of Marsh Creek were dropped beginning in 1963 because of the low number of redds observed each year in the section.
1969	The correct count (222 redds) previously had been incorrectly reported as 235 redds.
Beaver Creek	For 1960-64 and 1966-68 the transact extended from the mouth of Beaver Creek upstream to Winnemuca Creek. In 1965 the transect extended from the lower Beaver Creek bridge upstream to Winnemuca Creek. For 1969-92 the transect extended from the lower Beaver Creek Bridge upstream to the mouth of Bear Creek.

Sulphur Creek

1957 and 1958	An aerial count was made from the mouth of Sulphur Creek upstream to the mouth of North Fork Sulphur Creek. One count was reported for the entire section each year. This section represents approximately 11 miles of stream.
1959-65	The previously reported counts for this period were made from the mouth of Sulphur Creek upstream to North Fork Sulphur Creek (aerial counts). The previously reported counts were: 1959 - 100 redds, 1960 - 79 redds, 1961 - 239 redds, 1962 - 169 redds, 1963 - 332 redds, 1964 - 97 redds, and 1965 - 43 redds. This section of stream counted in these years was subdivided into three transects for 1959-62 and 1965 and two transects for 1963 and 1964; separate counts were reported for each of the transects. The previously reported counts were changed for this report to represent a section of stream more similar to that counted from 1966-92. The counts in this report are for the following stream sections: 1959-62 and 1965 - Sulphur Creek from its mouth upstream to the mouth of Bluemoon Creek, and 1963-64 - Sulphur Creek from its mouth upstream to the upper end of the airstrip at the ranch. The ranch is situated at the mouth of Bluemoon Creek.
1966-92	Beginning in 1966 the section of stream surveyed was from the meadow area 2.6 miles

	downstream of the ranch upstream to the upper end of the airstrip at the ranch. Ground counts were made in all years. This is the standard trend area and count method.

Upper Big Creek

1957	Aerial count from Logan Creek upstream to Jacobs Ladder.
1958-92	Ground counts from Logan Creek upstream to Jacobs Ladder.

TABLE 3 TREND AREAS

Loon Creek

1957 and 1958	Area surveyed extended from the Mouth of Loon Creek upstream to the Boyle Ranch.
1959-62	Aerial counts from the mouth of Cold Springs Creek upstream to Boyle Ranch.
1963	Ground count from Cold Springs Creek upstream to Cabin Creek, aerial count from Cabin Creek upstream to Loon Creek Guard Station.
1964-78	Ground count from Cold Springs Creek upstream to Cabin Creek, aerial count from Cabin Creek upstream to Mayfield Creek and up Mayfield Creek to steep canyon.
1967	The previously reported count (96 redds) did not include the aerial count from Cabin Creek upstream to Mayfield Creek and up Mayfield Creek to steep canyon (68 redds).
1974	The previously reported count (34 redds) did not include the aerial count from Cabin Creek upstream to Mayfield Creek and up Mayfield Creek to steep canyon (13 redds).
1980-87	Aerial counts over two transacts: Cold Springs Creek upstream to Cabin Creek, and Cabin Creek upstream to Mayfield Creek and up Mayfield Creek to steep canyon.
1988	Forest fires prevented flying, a ground count was made from Cold Springs Creek upstream to the meadows at Falconberry.
1989-92	Aerial counts, upper boundary of trend area moved downstream from canyon on Mayfield Creek to Loon Creek Guard Station.

Secesh River/Lake Creek

1957 and 1958	The previously reported counts (1957 - 344 redds, 1958 - 478 redds) had included redds counted in the Secesh River from its mouth upstream to the mouth of Loon Creek. For this report the counts over this lower section were subtracted from the previously reported counts so the counts are now comparable to those of subsequent years.
1959-63 and 1965	Aerial counts; Secesh River from Loon Creek upstream to Lake Creek and Lake Creek from its mouth upstream to the borrow pit before the jeep trail (near Summit Creek). The previously reported count for 1959 (285 redds) had been expanded to account for incomplete spawning activity. The previously reported count for 1960-62 had included redds counted in the Secesh River from its mouth upstream to Loon Creek (1960 - 7 redds, 1961 - 7 redds, and 1961 - 11 redds). These counts were subtracted from the previously reported counts. Also, the 1960 count was previously incorrectly reported.
1964 and 1967-84	Ground counts: Secesh River from Chinook Campground upstream to Warm Springs Creek and Lake Creek from its mouth upstream to Willow Creek. In 1984 Lake Creek was not counted; 21 redds were counted in the Secesh River transect.

1966	Ground counts: Secesh River from Loon Creek upstream to Lake Creek and Lake Creek from its mouth upstream to the borrow pit before the jeep trail (near Summit Creek).
1985	Secesh River: aerial count from Chinook Campground upstream to Warm Springs Creek; Lake Creek: ground count from its mouth upstream to Threemile Creek (Threemile Creek to Willow Creek not counted).
1986-92	Secesh River: aerial count from Loon Creek upstream to Warm Springs Creek; Lake Creek: ground count from its mouth upstream to Willow Creek.

Lower Salmon River

1957-59	The previously reported counts (1957 - 2406 redds, 1958 - 362 redds, and 1959 - 336 redds) had not included the counts from Valley Creek upstream to the Sunny Gulch sheep bridge. This transact is part of the Lower Salmon River trend area but the counts had been added to the Upper Salmon River trend area.
1960	This count had previously been incorrectly reported as 818 redds. The ground count for the transact from Warm Springs Creek to the Yankee Fork Salmon River had been used rather than the standard aerial count.
1974	The previously reported count (200 redds) was incorrect for this trend area, the correct count is 40 redds. The 200 redds had been counted between the Sunny Gulch sheep bridge and the Sawtooth Ranger Station, part of the Upper Salmon River trend area.
1978	The transacts from the Lemhi River upstream to the Pahsimeroi River and the Pahsimeroi River upstream to the U.S. 93 bridge were not counted because of high turbidity from the East Fork Salmon River. Also, no redds were counted in the transact from the U.S. 93 bridge upstream to the East Fork Salmon River although visibility may have been reduced by the high turbidity. The count had previously been incorrectly reported.
1980 and 1984	Transects from the Lemhi River upstream to the East Fork Salmon River were not counted.
1981-83	Transacts from the Lemhi River upstream to the U.S. 93 bridge were not counted.
1985	The previously reported count (126 redds) had included 44 redds counted from Redfish Lake Creek upstream to the Sawtooth Fish Hatchery weir, which is part of the Upper Salmon River trend area. The upper boundary of the trend area was changed from the Sunny Gulch sheep bridge to Redfish Lake Creek this year. Also, the transect from the Lemhi River upstream to the Pahsimeroi River was not counted.
1986	The transact from the Lemhi River upstream to the Pahsimeroi River was not counted.
1987-92	All transacts from the Lemhi River upstream to Redfish Lake Creek were counted.

Lower Valley Creek

1957-60	Aerial counts.
1961-83	Ground counts, except 1980 and 1982 (aerial counts).
1984-92	Aerial counts.

Lower East Fork Salmon River

1957-59	Aerial counts over two transects: mouth upstream to the mouth of Herd Creek and the mouth of Herd Creek upstream to the mouth of Big Boulder Creek. The previously reported 1957 and 1959 counts had not included the redds counted between Herd Creek and Big Boulder Creek, these are now included. Also, no count was previously reported for 1958. A count had been made and is now reported.
1960	This count had previously been incorrectly reported as 303 redds. From the EFSR mouth upstream to Herd Creek was counted from the air, from Herd Creek upstream to Big Boulder Creek was counted from the ground.
1961-81	Aerial count from mouth of EFSR upstream to Herd Creek, ground count from Herd Creek upstream to 3.5 miles below Big Boulder Creek (or to Big Boulder Creek in some years), except as noted below.
1961	The previously reported count (198 redds) was incorrect. Ninety-eight redds were counted from the mouth upstream to Herd Creek (aerial count) and 461 redds were counted between Herd Creek and Big Boulder Creek.
1979	EFSR from its mouth upstream to Herd Creek was not counted.
1982 and 1983	Aerial counts
1984-91	With the installation of the EFSR weir and trap in 1984 the upper transect was changed. For this period the upper transect counted was from Herd Creek upstream to the weir. To adjust the counts for this time period to be comparable to previous counts, the upper transect count was multiplied by 0.323 and rounded up to the next greater redd (e.g. 10.2 and 10.7 would be rounded up to 11 redds). The adjustment factor represents the proportion of useable spawning habitat between Herd Creek and the weir that is contained within the previously counted transact (Herd Creek to 3.5 miles below Big Boulder Creek). This method assumes uniform distribution of redds throughout the useable spawning habitat. All counts were made from the air.
1992	Aerial counts, EFSR from its mouth upstream to Herd Creek and from Herd Creek upstream to 3.5 miles below Big Boulder Creek.

TABLE 4 TREND AREAS

Johnson Creek

1957-59	The previously reported counts (1957 - 349 redds, 1958 - 269 redds, 1959 - 294 redds) had included counts over additional sections upstream and downstream of the standard trend area reported in later years.
1960	The previously reported count (517 redds) was over the entire stream from its mouth to the headwaters. The redds counted in areas outside of the standard trend area were subtracted from the previously reported count.
1961	The previously reported count (207 redds) had included 6 redds counted between the Cox Dude Ranch and Twin Springs Campground, a section not part of the standard trend area. The entire stream from its mouth to headwaters was counted, no redds were observed in other areas.
1957-62	Aerial counts.
1963-92	Ground counts.

South Fork Salmon River

1957-58	The previously reported 1957 count (2,812 redds) had included redds counted in a section downstream of the standard transect. The 1958 count had previously been incorrectly reported as 1,236 redds.
Method note	From 1960-92 all transacts from the mouth of the East Fork South Fork Salmon River upstream to the Stolle Meadows Guard Station were counted from the air. The count method used on the upper transect (Stolle Meadows Guard Station upstream to Rice Creek) varied as follows: 1979-81, and 1985-92 - aerial counts; 1960-78 and 1982-84 - ground counts.
1960	The count had previously been reported as 2,306 redds. This count was changed to 2,290 redds and represents aerial counts from the East Fork South Fork Salmon River upstream to Camp Creek and a ground count from Camp Creek upstream to Rice Creek. The ground count was made in the upper section because the high density of redds in this area made an aerial count difficult.
1963	The transact from the mouth of the East Fork Salmon River upstream to Miners Peak Pack Bridge was not counted.
1972	The count previously had been incorrectly reported as 577 redds.
1976	The transect from Stolle Meadows Guard Station upstream to Rice Creek was not counted.

TABLE 14 TREND AREAS

Selway River

1985	Only the transact from the mouth of the Little Clearwater River upstream to Magruder Crossing was counted. Poor flying conditions prevented counting other transects.
1989	Redds were counted only in the transact from the mouth of the Little Clearwater River upstream to Magruder Crossing (5 redds, ground count). The transects from Bear Creek upstream to Running Creek and Whitecap Creek upstream to the Little Clearwater River were not counted.
Method note	All transacts were counted from the air except in 1988 and 1989. During theses two years the transect from the Little Clearwater River upstream to Magruder Crossing was counted from the ground, all other transects were counted from the air. From 1990-92 ground counts were made in addition to the aerial counts from the Little Clearwater River upstream to Magruder Crossing. These ground counts were made too early and are not included with the total number of redds reported in the table.

Bear Creek

No notes

Running Creek

No notes

Whitecap Creek

No notes

Moose Creek

Transact	For the years 1972, 1973, 1983, and 86-89 the upstream boundary of the transact was the mouth of Elbow Creek, for all other years the upstream boundary was the mouth of Cedar Creek.

TABLE 15 TREND AREAS

Crooked Fork Creek

1968-73	Ground counts from Brushy Fork to Haskell Creek Bridge.
1974-76	Aerial counts from Brushy Fork to Fox Creek. The previously reported counts for 1975 (31 redds) and 1976 (49 redds) had included the redds counted from the mouth upstream to Brushy Fork, a section not part of the standard trend area.
1977	Ground count from Brushy Fork to Rock Creek.
1978-80	Ground count from Haskell Creek to Rock Creek.
1981-82	unknown
1984-89	Ground count from Rock Creek to Shotgun Creek.
1990-92	Ground count from Rock Creek to Cliff's Hole.

Brushy Fork

1972-81	Aerial count, mouth upstream to lower Elk Meadows road bridge (Low Gap bridge).
1981-88	Ground count, Twin Creek to Elk Meadows road bridge, except 1988 when aerial count was made.
1989-92	Ground count, lower Elk Meadows road bridge to downstream approximately one mile.

Newsome Creek

1977-86	Ground count from Nugget Creek to Beaver Creek, aerial count from Beaver Creek to Radcliff Creek.
1987	Aerial counts, Nugget Creek to Beaver Creek and Beaver Creek to Radcliff Creek.
1988-92	Aerial counts, mouth upstream to Radcliff Creek.

Crooked River

1974-89	Aerial counts, Narrows to Orogrande Lodge.
1990-91	Ground counts, from the mouth of Crooked River upstream to the forks above old Orogrande.
1992	A ground count had been conducted over the entire stream, 51 redds were counted. This count is not comparable to previous years' counts.

Red River

Note

Most of the redd counts previously reported are corrected in this report; inadvertent reporting errors had been discovered. The standard trend area transact extended from the Cole-66 bridge upstream to the Red River Ranger Station from 1974-86. In 1987, with the installation of the Red River weir, the upper boundary of the transact was changed to the weir site. The weir and Ranger Station are located at approximately the same point along the stream. Beginning in 1977 counts were made on other transacts, some within and some outside the standard trend area. In most years these additional counts were added to the count for the standard trend area, inflating the counts for the trend area. In this report the counts included in the table represent only those redds counted in the standard trend area from the air.

American River

no changes

APPENDIX B. Descriptions of Idaho Department of Fish and Game chinook salmon redd count transects, counting methods used, and target dates for conducting counts.

TRANSECT	TRANSECT DESCRIPTION	TYPE	METHOD	TIMING	COMMENTS
WEST FORK CHAMBERLAIN CREEK					**WILD, UNCLASSIFIED**
WS-1	West Fork Chamberlain Creek from its mouth to the mouth of Game Creek	NT	Ground	8/25	
MARSH CREEK DRAINAGE	**TREND AREA**				**WILD, SPRING CHINOOK**
WS-2a	Marsh Creek, from mouth of Dry Creek to mouth of Knapp Creek	T	Ground	8/15-8/19	two persons
WS-2b	Marsh Creek, from mouth of Knapp Creek to mouth of Capehorn Creek	T	Ground	8/15-8/19	two persons
WS-3	Capehorn Creek, from mouth to mouth of Banner Creek	T	Ground	8/15-8/20	
WS-4	Knapp Creek from mouth to the meadow (approximately 4 miles)	T	Ground	8/15-8/20	Access off Asher Creek Road
WS-5	Beaver Creek, from main road bridge to Bear Creek	T	Ground	8/15-8/20	
LOON CREEK	**TREND AREA**				**WILD, SUMMER CHINOOK**
WS-6	Loon Creek from Cabin Creek to upper canyon at Falconberry	T	Helicopter	8/25-9/5	Optimum count timing not established.
WS-7	Loon Creek from Guard Station to Cabin Creek	T	Helicopter	8/25-9/5	Optimum count timing not established.
CAMAS CREEK					**WILD, UNCLASSIFIED**
WS-8	Camas Creek, from Castle Creek to Hammer Creek	UC	Helicopter	8/25-9/5	South Fork Camas Creek to Castle Creek - deleted.

TRANSECT	TRANSECT DESCRIPTION	TYPE	METHOD	TIMING	COMMENTS
BEAR VALLEY CREEK	**TREND AREA**				**WILD, SPRING CHINOOK**
WS-9a	Bear Valley Creek (BVC), mine exclosure area	T	Ground	8/27	
WS-9b	BVC, mine to Cub Creek	T	Ground	8/27	
WS-9c	BVC, Cub Creek to Sack Creek	T	Ground	8/27	
WS-9d	BVC, Sack Creek to Elk Creek	T	Ground	8/27	
WS-10a	BVC, Elk Creek to Poker Bridge	T	Ground	8/27	
WS-10b	BVC, Poker Bridge to Fir Creek	T	Ground	8/27	
ELK CREEK	**TREND AREA**				**WILD, SPRING CHINOOK**
WS-11a	Elk Creek, from West Fork to Twin Bridges	T	Ground	8/27	
WS-11b	Twin Bridges to Guard Station	T	Ground	8/27	
WS-11c	Guard Station to Bear Valley Creek	T	Ground	8/27	
SULPHUR CREEK	**TREND AREA**				**WILD, SPRING CHINOOK**
WS-12	From ranch downstream of Bluemoon Creek downstream approximately 3 miles to point where stream meanders to hillside on north edge of meadow.	T	Ground	8/21	
SULPHUR CREEK	**OTHER**				**WILD, SPRING CHINOOK**
OS-4	From 1.5 miles above ranch (where trail meets Sulphur Creek) downstream to Sulphur Creek ranch.	NT	Ground	8/21	Added in 1988

TRANSECT	TRANSECT DESCRIPTION	TYPE	METHOD	TIMING	COMMENTS
UPPER BIG CREEK	**TREND AREA**				**WILD, SPRING CHINOOK**
WS-13	Big Creek from Jacobs Ladder Creek to Logan Creek.	T	Ground	9/5	
LOWER BIG CREEK					**WILD, SUMMER CHINOOK**
WS-14a	Big Creek, from Logan Creek downstream to Smith Creek.	NT	Helicopter	9/5	Not counted since 1966. Reserve for future use.
WS-14b	Big Creek, from Smith Creek downstream to Monumental Creek (Crooked Creek).	NT	Helicopter	9/5	Not counted since 1966. Reserve for future use.
WS-14c	Big Creek from Crooked Creek downstream to Rush Creek.	NT	Helicopter	9/5	Counted from 1960-66. Renew counts in 1992.
WS-14d	Big Creek from Rush Creek downstream to mouth.	NT	Helicopter	9/5	Counted from 1960-66. Renew counts in 1992.
MIDDLE FORK SALMON RIVER					**WILD, UNCLASSIFIED**
WS-15	MFSR from Loon Creek to mouth	NT	Helicopter	9/5	
SECESH RIVER - LAKE CREEK	**TREND AREA**				**WILD, SUMMER CHINOOK**
WS-16	Secesh River, from USFS boundary to Long Gulch Bridge	T	Ground & Helicopter	8/25 & 9/1	Count two dates using both methods
WS-17	Secesh River, from Long Gulch Bridge to Chinook Campground	T	Ground & Helicopter	8/25 & 9/1	Count two dates using both methods
WS-18	Lake Creek, from Willow Creek to Threemile Creek	T	Ground	8/25	
WS-19	Lake Creek, from Threemile Creek to Summit Creek	T	Ground	8/25	

TRANSECT	TRANSECT DESCRIPTION	TYPE	METHOD	TIMING	COMMENTS
UPPER EAST FORK SALMON RIVER	**TREND AREA**				**HATCHERY-INFLUENCED, SPRING CHINOOK**
NS-1a	East Fork Salmon River (EFSR) from 3.5 miles below Boulder Creek upstream to weir.	T	Helicopter	9/5	Review boundaries.
NS-1b	EFSR from weir upstream to Bowery Guard Station.	T	Helicopter		Review boundaries.
LOWER EAST FORK SALMON RIVER	**TREND AREA**				**WILD, SUMMER CHINOOK**
NS-2a	EFSR from mouth upstream to Herd Creek.	T	Helicopter	9/5	Review boundaries.
NS-2b	EFSR from Herd Creek upstream to point 3.5 miles below Boulder Creek.	T	Helicopter	9/5	Review boundaries
UPPER VALLEY CREEK	**TREND AREA**				**HATCHERY-INFLUENCED, SPRING CHINOOK**
NS-3a	Valley Creek, from East Fork Valley Creek downstream to Ford.	T	Ground	8/25	
NS-3b	Valley Creek, from Ford downstream to Stanley Lake Creek	T	Ground	8/25	
LOWER VALLEY CREEK	**TREND AREA**				**WILD, SUMMER CHINOOK**
NS-4	Valley Creek from Stanley Lake Creek downstream to mouth.	T	Helicopter	9/5	
UPPER YANKEE FORK SALMON RIVER	**TREND AREA**				**HATCHERY-INFLUENCED, SPRING CHINOOK**
NS-5	Yankee Fork Salmon River (YFSR) from Twelvemile Creek to Jordan Creek.	T	Ground	9/10	
LOWER YANKEE FORK SALMON RIVER					**UNCLASSIFIED**
NS-6	YFSR from Jordan Creek to Pole Camp	UC	Helicopter	9/5	Possible trend area.

TRANSECT	TRANSECT DESCRIPTION	TYPE	METHOD	TIMING	COMMENTS
WEST FORK YANKEE FORK SALMON RIVER					**HATCHERY-INFLUENCED, UNCLASSIFIED**
NS-7	West Fork YFSR from Cabin Creek downstream to Lightning Creek.	?	Ground	9/10	
NS-8	West Fork YFSR from Lightning Creek downstream to mouth.	?	Ground	9/10	
LEMHI RIVER	**TREND AREA**				**HATCHERY-INFLUENCED, SPRING CHINOOK**
NS-9	Lemhi River from Leadore to Cottam Lane	T	Helicopter & Ground	9/5	Compare methods for 3-5 years.
NS-10	Lemhi River from Cottam Lane to Lemhi Store	T	Helicopter	9/5	
PANTHER CREEK					**UNCLASSIFIED**
NS-11	Panther Creek from Moyer Creek to Fourth of July Creek	X	Ground	8/25	
ALTURAS LAKE CREEK	**TREND AREA**				**UNCLASSIFIED, SPRING CHINOOK**
NS-12	Alturas Lake Creek from mouth upstream to Cabin Creek road bridge (second bridge).	T	Ground	9/?	
ALTURAS LAKE CREEK	**OTHER**				**UNCLASSIFIED, SPRING CHINOOK**
OS-1	Alturas Lake Creek (ALC) from Cabin Creek road bridge upstream to the Alturas Lake Creek diversion dam.	NT	Ground	?	Added in 1985
OS-2	ALC diversion dam upstream to Alturas Lake (includes Perkins Lake).	NT	Ground	?	Added in 1985
OS-3	ALC from Alturas Lake inlet upstream to Apline Creek	NT	Ground	?	Added in 1985

TRANSECT	TRANSECT DESCRIPTION	TYPE	METHOD	TIMING	COMMENTS
POLE CREEK (Upper Salmon River tributary)					**UNCLASSIFIED**
NS-13a	Pole Creek from mouth upstream to fish screen.	NT	Ground	?	
NS-13b	Fish screen to road crossing at upper end of meadows.	NT	Ground	?	
BEAVER CREEK (Upper Salmon River tributary)					**UNCLASSIFIED**
NS-14	Beaver Creek	NT	Ground	?	Special studies transect.
UPPER SALMON RIVER	**TREND AREA**				**UNCLASSIFIED, SPRING CHINOOK**
NS-15a	Salmon River (SR) from Sawtooth Hatchery weir upstream to Hell Roaring Bridge.	T	Helicopter	?	
NS-15b	SR from Hell Roaring Bridge upstream to Alturas Lake Creek.	T	Helicopter	?	
NS-15c	SR from Alturas Lake Creek upstream to Breckenridge diversion dam.	T	Helicopter	?	
NS-16	SR from Sawtooth Hatchery weir downstream to Redfish Lake Creek.	T	Helicopter	9/5	
UPPER SALMON RIVER	**OTHER**				**UNCLASSIFIED, SPRING CHINOOK**
OS-5	SR, from Breckenridge diversion dam upstream to Pole Creek.	NT	Helicopter & Ground	?	Aerial counts added in 1992.
OS-6	SR, from Pole Creek upstream to the Highway 75 Bridge.	NT	Helicopter & Ground	?	Aerial counts added in 1992.

TRANSECT	TRANSECT DESCRIPTION	TYPE	METHOD	TIMING	COMMENTS
LOWER SALMON RIVER	**TREND AREA**				**UNCLASSIFIED, SUMMER CHINOOK**
NS-17	Salmon River (SR) from Redfish Lake Creek downstream to Valley Creek.	T	Helicopter	9/5	
NS-18	SR from Valley Creek downstream to Yankee Fork Salmon River.	T	Helicopter	9/5	
NS-19	SR from Yankee Fork downstream to Warm Springs Creek	T	Helicopter	9/5	
NS-20	SR from Warm Springs Creek downstream to East Fork Salmon River	T	Helicopter	9/5	
NS-21	SR from East Fork downstream to US 93 bridge.	T	Helicopter	9/5	
NS-22	SR from US 93 bridge downstream to Morgan Creek.	T	Helicopter	9/5	
NS-23	SR from Morgan Creek downstream to Pahsimeroi River.	T	Helicopter	9/5	
NS-24	SR from Pahsimeroi River downstream to Lemhi River.	T	Helicopter	9/5	
SLATE CREEK					**UNCLASSIFIED**
NS-25	Slate Creek, boundaries undefined	NT	Ground	?	

TRANSECT	TRANSECT DESCRIPTION	TYPE	METHOD	TIMING	COMMENTS
SOUTH FORK SALMON RIVER	**TREND AREA**				**UNCLASSIFIED, SUMMER CHINOOK**
NS-26	South Fork Salmon River (SFSR) from Rice Creek downstream to weir.	T	Helicopter & Ground	9/5	
NS-27	SFSR from weir downstream to Poverty Flat at Black Mare Creek.	T	Helicopter	9/5	
NS-28	SFSR from Poverty Flat downstream to Miners Peak pack bridge.	T	Helicopter	9/5	
NS-29	SFSR from Miners Peak pack bridge downstream to East Fork-South Fork Salmon River bridge.	T	Helicopter	9/5	
JOHNSON CREEK	**TREND AREA**				**UNCLASSIFIED, SUMMER CHINOOK**
NS-30	Johnson Creek, from Moose Creek (Clements Ranch) to upper end of Deadhorse Canyon at Ice Hole.	T	Ground	9/1 - 9/5	Previous timing = 8/26
JOHNSON CREEK DRAINAGE	**OTHER**				**UNCLASSIFIED, SUMMER CHINOOK**
NS-31	Johnson Creek, from mouth of Whiskey Creek to head of canyon.	NT	Helicopter	9/1 - 9/5	Previous timing = 8/26
NS-32	Sand Creek, from mouth to bridge.	NT	Helicopter	9/1 - 9/5	Previous timing = 8/26

TRANSECT	TRANSECT DESCRIPTION	TYPE	METHOD	TIMING	COMMENTS
WHITECAP CREEK TREND AREA					**NATURAL, SPRING CHINOOK**
WC-1	Whitecap Creek, from mouth to Coopers Flat	T	Helicopter	9/8	
BEAR CREEK TREND AREA					**NATURAL, SPRING CHINOOK**
WC-2	Bear Creek, from mouth to Cub Creek.	T	Helicopter	9/8	
MOOSE CREEK TREND AREA					**NATURAL, SPRING CHINOOK**
WC-3	Moose Creek, from mouth to Cedar Creek.	T	Helicopter	9/8	
RUNNING CREEK TREND AREA					**NATURAL, SPRING CHINOOK**
WC-4a	Running Creek, from mouth to 2 miles above Eagle Creek.	T	Helicopter	9/8	
WC-4b	Eagle Creek, lower one mile.	T	Helicopter	9/8	
SELWAY RIVER TREND AREA					**NATURAL, SPRING CHINOOK**
WC-5	Selway River (SR), Thompson Flat to Magruder Ranger Station	T	Helicopter	9/8	
WC-6	SR, Magruder Ranger Station to Magruder Crossing	T	Helicopter	9/8	
WC-7	SR, Magruder Crossing to Little Clearwater River	T	Ground & Helicopter	9/8	
WC-8	SR, Little Clearwater River to Whitecap Creek	T	Helicopter	9/8	
WC-9	SR, Whitecap Creek to Bear Creek	T	Helicopter	9/8	

TRANSECT	TRANSECT DESCRIPTION	TYPE	METHOD	TIMING	COMMENTS
RED RIVER	**TREND AREA**				**HATCHERY-INFLUENCED, SPRING CHINOOK**
NC-1	Red River, from weir to Cole 66 bridge.	T	Helicopter	9/3	
RED RIVER	**OTHER**				**HATCHERY-INFLUENCED, SPRING CHINOOK**
NC-2a	Red River, from Otterson Creek to Ditch Creek.	NT	Ground	9/3	
NC-2b	Red River, from Ditch Creek to the weir.	NT	Ground	9/3	
SOUTH FORK RED RIVER					**HATCHERY-INFLUENCED, SPRING CHINOOK**
NC-3	South Fork Red River from mouth upstream to Schooner Creek.	NT	Ground	9/3	Delete, unless used for special studies.
AMERICAN RIVER	**TREND AREA**				**HATCHERY-INFLUENCED, SPRING CHINOOK**
NC-4	American River, from Lick Creek to Kirk's Fork.	T	Helicopter	9/1 - 9/5	
CROOKED RIVER	**OTHER**				**HATCHERY-INFLUENCED, SPRING CHINOOK**
NC-5	Crooked River, from Relief Creek to upper end of airstrip.	C	Ground	9/3	For comparison with NC-6.
CROOKED RIVER	**TREND AREA**				**HATCHERY-INFLUENCED, SPRING CHINOOK**
NC-6	Crooked River, from narrows below Relief Creek to Orogrande Lodge.	T	Helicopter	9/3	Until 1989
NC-6	Crooked River, from mouth to the forks above Old Orogrande.	T	Ground	9/3	Started in 1990

TRANSECT	TRANSECT DESCRIPTION	TYPE	METHOD	TIMING	COMMENTS
NEWSOME CREEK	**OTHER**				**HATCHERY-INFLUENCED, SPRING CHINOOK**
NC-7	Newsome Creek, from Nugget Creek to Beaver Creek.	C	Ground	9/3	For comparison with NC-8.
NEWSOME CREEK	**TREND AREA**				**HATCHERY-INFLUENCED, SPRING CHINOOK**
NC-8	Newsome Creek, from mouth upstream to Radcliff Creek.	T	Helicopter	9/3	
CROOKED FORK CREEK	**OTHER**				**HATCHERY-INFLUENCED, SPRING CHINOOK**
NC-9a	Crooked Fork Creek (CFC), from mouth upstream to Brushy Fork Creek.	NT	Helicopter	9/3	
NC-9b	CFC, from Brushy Fork Creek upstream to Shotgun Creek.	NT	Helicopter	9/3	
NC-9c	CFC, from Shotgun Creek upstream to Boulder Creek.	NT	Helicopter	9/3	
NC-9d	CFC, from Boulder Creek upstream to Hopeful Creek.	NT	Helicopter	9/3	
CROOKED FORK CREEK	**TREND AREA**				**HATCHERY-INFLUENCED, SPRING CHINOOK**
NC-10	Crooked Fork Creek, from Rock Creek to "Cliff's Hole".	T	Ground	9/3	Highway 12 to Shotgun Creek road, to mouth of Rock Creek, walk approx. 2.5 miles to where un-named tributary enters on left bank at Cliff's Hole.

TRANSECT	TRANSECT DESCRIPTION	TYPE	METHOD	TIMING	COMMENTS
BRUSHY FORK CREEK	**TREND AREA**				**HATCHERY-INFLUENCED, SPRING CHINOOK**
NC-11	Brushy Fork Creek, from bridge across Brushy Fork at Road 373 and 373-C to marker approximately one mile downstream.	T	Ground	9/3	Turn off Highway 12 on Elk Meadows road at Lolo summit, through Packer meadows, over low gap and to first bridge crossing Brushy Fork.
BRUSHY FORK CREEK	**OTHER**				**HATCHERY-INFLUENCED, SPRING CHINOOK**
NC-12a	Brushy Fork Creek, from mouth upstream to Twin Creek.	NT	Helicopter	9/3	
NC-12b	Brushy Fork Creek, from Twin Creek upstream to Spruce Creek.	NT	Helicopter	9/3	
WHITE SAND CREEK					**HATCHERY-INFLUENCED, SPRING CHINOOK**
NC-13	White Sand Creek, from mouth upstream to Big Flat Creek.	NT	Helicopter	9/3	Added in 1987
LOLO CREEK					**HATCHERY-INFLUENCED, SPRING CHINOOK**
NC-14	Lolo Creek, from White Creek bridge to uppermost K-dam.	NT	Ground	9/3	Added in 1986.

Table C1. Length frequency of spring chinook salmon trapped at the Sawtooth Fish Hatchery weir, 1989.

Males				Females			
Fork Length (cm)	Total Number Recovered	Percent of Total	Age Class	Fork Length (cm)	Total Number Recovered	Percent of Total	Age Class
38.1	4	0.6%		38.1	0	0.0%	
40.6	2	0.3%		40.6	0	0.0%	
43.2	20	3.0%		43.2	0	0.0%	
45.7	17	2.5%	Jacks	45.7	0	0.0%	
48.3	35	5.2%	n=384	48.3	0	0.0%	n=3
50.8	40	6.0%	57.1%	50.8	0	0.0%	1.4%
53.3	40	6.0%		53.3	0	0.0%	
55.9	110	16.4%		55.9	0	0.0%	
58.4	45	6.7%		58.4	0	0.0%	
61.0	71	10.6%		61.0	3	1.4%	
63.5	28	4.2%		63.5	4	1.9%	
66.0	15	2.2%		66.0	1	0.5%	
68.6	11	1.6%	Age 4	68.6	8	3.7%	Age 4
71.1	31	4.6%	n=163	71.1	19	8.8%	n=88
73.7	26	3.97.	24.3%	73.7	21	9.7%	40.7%
76.2	23	3.4%		76.2	20	9.3%	
78.7	29	4.3%		78.7	15	6.9%	
81.3	31	4.6%		81.3	29	13.4%	
83.8	14	2.1%		83.8	5	2.3%	
86.4	3	0.4%		86.4	7	3.2%	
88.9	9	1.3%	Age 5	88.9	26	12.0%	Age 5
91.4	5	0.7%	n=125	91.4	17	7.9%	n=125
94.0	6	0.9%	18.6%	94.0	12	5.6%	57.9%.
96.5	4	0.6%		96.5	10	4.6%	
99.1	13	1.9%		99.1	15	6.9%	
101.6	4	0.6%		101.6	1	0.5%	
104.1	36	5.4%		104.1	3	1.4%	
Total	672			Total	216		

Table C2. Length frequency of spring chinook salmon trapped at the Sawtooth Fish Hatchery weir, 1990.

Males				Females			
Fork Length (cm)	Total Number Recovered	Percent of Total	Age Class	Fork Length (cm)	Total Number Recovered	Percent of Total	Age Class
38	2	0.2%		38	0	0.0%	
40	1	0.1%		40	0	0.0%	
42	2	0.2%		42	0	0.0%	
44	3	0.3%		44	0	0.0%	
46	3	0.3%		46	0	0.0%	
48	7	0.7%	Jacks	48	0	0.0%	
50	2	0.2%	n=80	50	0	0.0%	n=3
52	6	0.6%	8.1%	52	0	0.0%	0.6%
54	2	0.2%		54	0	0.0%	
56	4	0.4%		56	0	0.0%	
58	16	1.6%		58	1	0.2%	
60	9	0.9%		60	1	0.2%	
62	23	2.3%		62	1	0.2%	
64	32	3.2%		64	5	1.0%	
66	44	4.5%		66	3	0.6%	
68	88	8.9%	Age 4	68	21	4.2%	Age 4
70	74	7.5%	n=741	70	34	6.8%	n=308
72	125	12.7%	75.2%	72	44	8.7%	61.2%
74	135	13.7%		74	71	14.1%	
76	141	14.3%		76	62	12.3%	
78	102	10.4%		78	68	13.5%	
80	54	5.5%		80	48	9.5%	
82	50	5.1%		82	40	8.0%	
84	26	2.6%		84	27	5.4%	
86	13	1.3%		86	19	3.8%	
88	8	0.8%		88	18	3.6%	
90	0	0.0%	Age 5	90	16	3.2%	Age 5
92	4	0.4%	n=164	92	7	1.4%	n=192
94	2	0.2%	16.6%	94	11	2.2%	38.2%
96	3	0.3%		96	5	1.0%	
98	1	0.1%		98	1	0.2%	
100	0	0.0%		100	0	0.0%	
102	0	0.0%		102	0	0.0%	
104	3	0.3%		104	0	0.0%	
Total	985			Total	503		

Table C3. Length frequency of spring Chinook salmon trapped at the Sawtooth Hatchery weir, 1991.

Males				Females			
Fork Length (cm)	Total Number Recovered	Percent of Total	Age Class	Fork Length (cm)	Total Number Recovered	Percent of Total	Age Class
38	0	0.0%		38	0	0.0%	
40	2	0.7%		40	0	0.0%	
42	3	7.0%		42	0	0.0%	
44	6	2.0%		44	0	0.0%	
46	3	1.0%		46	0	0.0%	
48	4	1.3%	Jacks	48	0	0.0%	
50	5	1.7%	n=60	50	0	0.0%	n=0
52	3	1.0%	20.1%	52	0	0.0%	0.0%
54	1	0.3%		54	0	0.0%	
56	4	1.3%		56	0	0.0%	
58	7	2.3%		58	0	0.0%	
60	9	3.0%		60	0	0.0%	
62	73	4.3%		62	0	0.0%	
64	74	4.7%		64	0	0.0%	
66	11	3.7%		66	2	0.7%	
68	26	8.7%	Age 4	68	0	0.0%	Age 4
70	24	8.0%	n=732	70	5	1.9%	n=48
72	20	6.7%	44.1%	72	5	1.9%	18.0%
74	18	6.0%		74	13	4.9%	
76	13	4.3%		76	8	3.0%	
78	6	2.0%		78	15	5.6%	
80	12	4.0%		80	10	3.7%	
82	8	2.7%		82	75	5.6%	
84	9	3.0%		84	19	7.1%	
86	15	5.0%		86	32	12.0%	
88	14	4.7%		88	41	15.4%	
90	9	3.0%	Age 5	90	34	12.7%	Age 5
92	13	4.3%	n=107	92	29	10.9%	n=219
94	8	2.7%	35.8%	94	24	9.0%	82.0%
96	9	3.0%		96	8	3.0%	
98	4	1.3%		98	5	1.9%	
700	3	1.0%		100	2	0.7%	
702	2	0.7%		102	0	0.0%	
104	1	0.3%		104	0	0.0%	
Total	299			Total	267		

Table C4. Length frequency of spring chinook salmon trapped at the Sawtooth Fish Hatchery weir, 1992.

Males				Females			
Fork Length (cm)	Total Number Recovered	Percent of Total	Age Class	Fork Length (cm)	Total Number Recovered	Percent of Total	Age Class
38	0	0.0%		38	0	0.0%	
40	0	0.0%		40	0	0.0%	
42	0	0.0%		42	0	0.0%	
44	0	0.0%		44	0	0.0%	
46	1	0.5%		46	0	0.0%	
48	1	0.5%	Jacks	48	0	0.0%	
50	0	0.0%	n=21	50	0	0.0%	n=2
52	1	0.5%	9.5%	52	0	0.0%	1.2%
54	1	0.5%		54	0	0.0%	
56	3	1.4%		56	0	0.0%	
58	3	1.4%		58	1	0.6%	
60	3	1.4%		60	0	0.0%	
62	8	3.6%		62	1	0.6%	
64	6	2.7%		64	2	1.2%	
66	13	5.9%		66	5	3.0%	
68	20	9.0%	Age 4	68	1	0.6%	Age 4
70	17	7.7%	n=140	70	6	3.6%	n=65
72	17	7.7%	63.1%	72	6	3.6%	39.4%
74	24	10.8%		74	18	10.9%	
76	21	9.5%		76	18	10.9%	
78	22	9.9%		78	9	5.5%	
80	14	6.3%		80	11	6.7%	
82	8	3.6%		82	13	7.9%	
84	6	2.71AA		84	11	6.7%	
86	8	3.6%		86	21	12.7%	
88	6	2. 7'*		88	20	12.1 %	
90	6	2.7%	Age 5	90	10	6.1%	Age 5
92	2	0.9%	n=61	92	7	4.2%	n=98
94	5	2.3%	27.5%	94	2	1.2%	59.4%
96	3	1.4%		96	3	1.8%	
98	2	0.9'/.		98	0	0.0%	
100	1	0.5%		100	0	0.0%	
102	0	0.0%		102	0	0.0%	
104	0	0.0%		104	0	0.0%	
Total	222			Total	165		

Table C5. Length frequency of spring chinook salmon trapped at the East Fork Salmon River weir, 1989.

Males				Females			
Fork Length (cm)	Total Number Recovered	Percent of Total	Age Class	Fork Length (cm)	Total Number Recovered	Percent of Total	Age Class
38.1	1	1.0%		38.1	0	0.0%	
40.6	0	0.0%		40.6	0	0.0%	
43.2	1	1.0%		43.2	0	0.0%	
45.7	1	1.0%	Jacks	45.7	0	0.0%	
48.3	1	1.0%	n=19	48.3	0	0.0%	n=0
50.8	1	1.0%	19.4%	50.8	0	0.0%	0.0%
53.3	1	1.0%		53.3	0	0.0%	
55.9	5	5.1%		55.9	0	0.0%	
58.4	6	6.1%		58.4	0	0.0%	
61.0	2	2.0%		61.0	0	0.0%	
63.5	3	3.1%		63.5	0	0.0%	
66.0	3	3.1%		66.0	0	0.0%	
68.6	2	2.0%	Age 4	68.6	1	3.3%	Age 4
71.1	16	16.3%	n=38	71.1	2	6.7%	n=7
73.7	6	6.1%	38.8%	73.7	0	0.0%	23.3%
76.2	1	1.0%		76.2	3	10.0%	
78.7	7	7.1%		78.7	1	3.3%	
81.3	9	9.2%		81.3	5	16.7%	
83.8	2	2.0%		83.8	0	0.0%	
86.4	3	3.1%		86.4	2	6.7%	
88.9	5	5.1%	Age 5	88.9	6	20.0%	Age 5
91.4	5	5.1%	n=41	91.4	5	16.7%	n=23
94.0	2	2.0%	41.8%	94.0	2	6.7%	76.7%
96.5	1	1.0%		96.5	1	3.3%	
99.1	4	4.1%		99.1	0	0.0%	
101.6	1	1.0%		101.6	0	0.0%	
104.1	9	9.2%		104.1	2	6.7%	
Total	98			Total	30		

Table C6. Length frequency of spring chinook salmon trapped at the East Fork Salmon River weir, 1990.

Males				Females			
Fork Length (cm)	Total Number Recovered	Percent of Total	Age Class	Fork Length (cm)	Total Number Recovered	Percent of Total	Age Class
38	0	0.0%		38	0	0.0%	
40	0	0.0%		40	0	0.0%	
42	0	0.0%		42	0	0.0%	
44	0	0.0%		44	0	0.0%	
46	0	0.0%		46	0	0.0%	
48	1	0.9%	Jacks	48	0	0.0%	
50	0	0.0%	n=8	50	0	0.0%	n=0
52	0	0.0%	7.0%	52	0	0.0%	0.0%
54	1	0.9%		54	0	0.0%	
56	0	0.0%		56	0	0.0%	
58	3	2.6%		58	0	0.0%	
60	1	0.9%		60	0	0.0%	
62	2	1.7%		62	0	0.0%	
64	4	3.5%		64	1	3.3%	
66	8	7.0%		66	1	3.3%	
68	11	9.6%	Age 4	68	2	6.7%	Age 4
70	10	8.7%	n=78	70	1	3.3%	n=17
72	12	10.4%	67.8%	72	2	6.7%	56.7%
74	9	7.8%		74	3	10.0%	
76	10	8.7%		76	4	13.3%	
78	14	12.2%		78	3	10.0%	
80	7	6.1%		80	2	6.7%	
82	4	3.5%		82	2	6.7%	
84	4	3.5%		84	2	6.7%	
86	2	1.7%		86	0	0.0%	
88	0	0.0%		88	1	3.3%	
90	1	0.9%	Age 5	90	0	0.0%	Age 5
92	5	4.3%	n=29	92	2	6.7%	n=13
94	0	0.0%	25.2%	94	2	6.7%	43.3%
96	2	1.7%		96	2	6.7%	
98	1	0.9%		98	0	0.0%	
100	1	0.9%		100	0	0.0%	
102	1	0.9%		102	0	0.0%	
104	1	0.9%		104	0	0.0%	
Total	115				30		

Table C7. Length frequency of spring chinook salmon trapped at the East Fork Salmon River weir, 1991.

Males				Females			
Fork Length (cm)	Total Number Recovered	Percent of Total	Age Class	Fork Length (cm)	Total Number Recovered	Percent of Total	Age Class
38	0	0.0%		38	0	0.0%	
40	1	2.2%		40	0	0.0%	
42	0	0.0%		42	0	0.0%	
44	0	0.0%		44	0	0.0%	
46	0	0.0%		46	0	0.0%	
48	1	2.2%	Jacks	48	0	0.0%	
50	1	2.2%	n=6	50	0	0.0%	n=0
52	0	0.0%	13.3%	52	0	0.0%	0.0%
54	0	0.0%		54	0	0.0%	
56	0	0.0%		56	0	0.0%	
58	3	6.7%		58	0	0.0%	
60	0	0.0%		60	0	0.0%	
62	0	0.0%		62	0	0.0%	
64	1	2.2%		64	0	0.0%	
66	1	2.2%		66	0	0.0%	
68	6	13.3%	Age 4	68	0	0.0%	Age 4
70	5	11.1%	n=23	70	0	0.0%	n=0
72	0	0.0%	51.1%	72	0	0.0%	0.0%
74	4	8.9%		74	0	0.0%	
76	5	11.1%		76	0	0.0%	
78	1	2.2%		78	0	0.0%	
80	0	0.0%		80	0	0.0%	
82	3	6.7%		82	2	11.8%	
84	2	4.4%		84	1	5.9%	
86	0	0.0%		86	3	17.6%	
88	0	0.0%		88	2	11.8%	
90	3	6.7%	Age 5	90	7	41.2%	Age 5
92	0	0.0%	n=16	92	0	0.0%	n=17
94	1	2.2%	35.6%	94	2	11.8%	100.0%
96	3	6.7%		96	0	0.0%	
98	0	0.0%		98	0	0.0%	
100	3	6.7%		100	0	0.0%	
102	1	2.2%		102	0	0.0%	
104	0	0.0%		104	0	0.0%	
Total	45				17		

Table C8. Length frequency of spring chinook salmon trapped at the East Fork Salmon River weir, 1992.

Males				Females			
Fork Length (cm)	Total Number Recovered	Percent of Total	Age Class	Fork Length (cm)	Total Number Recovered	Percent of Total	Age Class
38	0	0.0%		38	0	0.0%	
40	0	0.0%		40	0	0.0%	
42	0	0.0%		42	0	0.0%	
44	0	0.0%		44	0	0.0%	
46	0	0.0%		46	0	0.0%	
48	1	1.9%	Jacks	48	0	0.0%	
50	0	0.0%	n=12	50	0	0.0%	n=1
52	0	0.0%	23.1%	52	0	0.0%	5.9%
54	1	1.9%		54	0	0.0%	
56	4	7.7%		56	0	0.0%	
58	1	1.9%		58	1	5.9%	
60	2	3.8%		60	0	0.0%	
62	3	5.8%		62	0	0.0%	
64	2	3.8%		64	0	0.0%	
66	1	1.9%		66	0	0.0%	
68	1	1.9%	Age 4	68	0	0.0%	Age 4
70	4	7.7%	n=21	70	2	11.8%	n=5
72	4	7.7%	40.4%	72	0	0.0%	29.4%
74	4	7.7%		74	1	5.9%	
76	5	9.6%		76	1	5.9%	
78	0	0.0%		78	1	5.9%	
80	0	0.0%		80	0	0.0%	
82	4	7.7%		82	3	17.6%	
84	2	3.8%		84	0	0.0%	
86	4	7.7%		86	1	5.9%	
88	2	3.8%		88	2	11.8%	
90	3	5.8%	Age 5	90	3	17.6%	Age 5
92	1	1.9%	n=19	92	1	5.9%	n=11
94	0	0.0%	36.5%	94	0	0.0%	64.7%
96	2	3.8%		96	1	5.9%	
98	0	0.0%		98	0	0.0%	
100	1	1.9%		100	0	0.0%	
102	0	0.0%		102	0	0.0%	
104	0	0.0%		104	0	0.0%	
Total	52				17		

Table C9. Length frequency of summer chinook salmon trapped at the South Fork Salmon River weir, 1989. The lengths of jacks (males less than 64 cm fork length) were not measured.

Males				Females			
Fork Length (cm)	Total Number Recovered	Percent of Total	Age Class	Fork Length (cm)	Total Number Recovered	Percent of Total	Age Class
63.5	0	0.0%		63.5	0	0.0%	
66.0	6	2.6%		66.0	0	0.0%	
68.6	8	3.5%	Age 4	68.6	0	0.0%	Age 4
71.1	21	9.3%	n=119	71.1	2	0.9%	n=44
73.7	24	10.6%	52.4%	73.7	10	4.7%	20.8%
76.2	28	12.3%		76.2	13	6.1%	
78.7	32	14.1%		78.7	19	9.0%	
81.3	11	4.8%		81.3	8	3.8%	
83.8	5	2.2%		83.8	14	6.6%	
86.4	2	0.9%		86.4	72	5.7%	
88.9	8	3.5%		88.9	45	21.2%	
91.4	14	6.2%		91.4	30	14.2%	
94.0	9	4.0%	Age 5	94.0	40	18.9%	Age 5
96.5	20	8.8%	n=108	96.5	9	4.2%	n=168
99.1	15	6.6%	47.6%	99.1	10	4.7%	79.2%
101.6	9	4.0%		101.6	0	0.0%	
104.1	9	4.0%		104.1	0	0.0%	
106.7	3	1.3%		106.7	0	0.0%	
109.2	2	0.9%		109.2	0	0.0%	
111.8	0	0.0%		111.8	0	0.0%	
114.3	1	0.4%		114.3	0	0.0%	
Total	227			Total	212		

Table C10. Length frequency of summer chinook salmon trapped at the South Fork Salmon River weir, 1990.

Males				Females			
Fork Length (cm)	Total Number Recovered	Percent of Total	Age Class	Fork Length (cm)	Total Number Recovered	Percent of Total	Age Class
38	0	0.0%		38	0	0.0%	
40	0	0.0%		40	0	0.0%	
42	1	0.2%		42	0	0.0%	
44	1	0.2%		44	0	0.0%	
46	1	0.2%		46	0	0.0%	
48	0	0.0%	Jacks	48	0	0.0%	
50	1	0.2%	n=10	50	0	0.0%	n=0
52	1	0.2%	1.6%	52	0	0.0%	0.0%
54	0	0.0%		54	0	0.0%	
56	1	0.2%		56	0	0.0%	
58	0	0.0%		58	0	0.0%	
60	2	0.3%		60	0	0.0%	
62	2	0.3%		62	0	0.0%	
64	7	1.1%		64	0	0.0%	
66	13	2.1%		66	1	0.3%	
68	35	5.7%	Age 4	68	7	2.0%	Age 4
70	38	6.1%	n=414	70	11	3.1%	n=195
72	67	10.8%	67.0%	72	27	7.7%	55.6%
74	92	14.9%		74	27	7.7%	
76	77	12.5%		76	61	17.4%	
78	85	13.8%		78	61	17.4%	
80	70	11.3%		80	68	19.4%	
82	55	8.9%		82	47	13.4%	
84	29	4.7%		84	11	3.1%	
86	20	3.2%		86	8	2.3%	
88	6	1.0%		88	6	1.7%	
90	6	1.0%	Age 5	90	4	1.1%	Age 5
92	4	0.6%	n=194	92	5	1.4%	n=156
94	1	0.2%	31.4%	94	3	0.9%	44.4%
96	2	0.3%		96	4	1.1%	
98	0	0.0%		98	0	0.0%	
100	0	0.0%		100	0	0.0%	
102	1	0.2%		102	0	0.0%	
104	0	0.0%		104	0	0.0%	
Total	618			Total	351		

Table C11. Length frequency of summer chinook salmon trapped at the South Fork Salmon River weir, 1991.

Males				Females			
Fork Length (cm)	Total Number Recovered	Percent of Total	Age Class	Fork Length (cm)	Total Number Recovered	Percent of Total	Age Class
38	3	0.5%		38	0	0.0%	
40	3	0.5%		40	0	0.0%	
42	6	1.0%		42	0	0.0%	
44	19	3.1%		44	0	0.0%	
46	29	4.7%		46	0	0.0%	
48	69	11.2%	Jacks	48	0	0.0%	
50	100	16.2%	n=797	50	0	0.0%	n=0
52	126	20.4%	81.6%	52	0	0.0%	0.0%
54	127	20.6%		54	0	0.0%	
56	126	20.4%		56	0	0.0%	
58	91	14.7%		58	0	0.0%	
60	60	9.7%		60	0	0.0%	
62	38	6.1%		62	0	0.0%	
64	21	3.4%		64	0	0.0%	
66	7	1.1%		66	0	0.0%	
68	12	1.9%	Age 4	68	4	1.1%	Age 4
70	16	2.6%	n=101	70	4	1.1%	n=22
72	16	2.6%	10.3%	72	2	0.6%	9.4%
74	13	2.1%		74	5	1.4%	
76	12	1.9%		76	4	1.1%	
78	4	0.6%		78	3	0.9%	
80	7	1.1%		80	4	1.1%	
82	2	0.3%		82	8	2.3%	
84	4	0.6%		84	28	8.0%	
86	10	1.6%		86	26	7.4%	
88	8	1.3%		88	41	11.7%	
90	12	1.9%	Age 5	90	46	13.1%	Age 5
92	11	1.8%	n=79	92	30	8.5%	n=213
94	7	1.1%	8.1%	94	19	5.4%	90.6%
96	3	0.5%		96	8	2.3%	
98	8	1.3%		98	2	0.6%	
100	4	0.6%		100	1	0.3%	
102	3	0.5%		102	0	0.0%	
104	0	0.0%		104	0	0.0%	
Total	977			Total	235		

Table C12. Length frequency of summer chinook salmon trapped at the South Fork Salmon River weir, 1992.

Males				Females			
Fork Length (cm)	Total Number Recovered	Percent of Total	Age Class	Fork Length (cm)	Total Number Recovered	Percent of Total	Age Class
36	1			36	0		
38	1	0.2%		38	0	0.0%	
40	2	0.3%		40	0	0.0%	
42	3	0.5%		42	0	0.0%	
44	5	0.8%		44	0	0.0%	
46	12	1.9%		46	0	0.0%	
48	10	1.6%	Jacks	48	0	0.0%	
50	31	5 0%	n=171	50	0	0.0%	n=1
52	27	4 4%	9.9%	52	0	0.0%	0.1%
54	29	4 7%		54	0	0.0%	
56	16	2 6%		56	0	0.0%	
58	10	1 6%		58	1	0.3%	
60	12	1 9%		60	0	0.0%	
62	12	1 9%		62	0	0.0%	
64	20	3 2%		64	0	0.0%	
66	42	6 8%		66	0	0.0%	
68	72	11 7%	Age 4	68	12	3.4%	Age 4
70	104	16 8%	n=1082	70	19	5.4%	n=670
72	170	27 5%	62.6%	72	59	16.8%	59.8%
74	223	36 1%		74	113	32.2%	
76	235	38 0%		76	216	61.5%	
78	216	35 0%		78	251	71.5%	
80	179	29 0%		80	250	71.2%	
82	114	18 4%		82	111	31.6%	
84	81	13 1%		84	53	15.1%	
86	55	8 9%		86	23	6.6%	
88	28	4 5%		88	7	2.0%	
90	9	1.5%	Age 5	90	3	0.9%	Age 5
92	4	0.6%	n=476	92	3	0.9%	n=450
94	3	0.5%	27.5%	94	0	0.0%	40.1%
96	1	0.2%		96	0	0.0%	
98	2	0.3%		98	0	0.0%	
100	0	0.0%		100	0	0.0%	
102	0	0.0%		102	0	0.0%	
104	0	0.0%		104	0	0.0%	
Total	1729			Total	1121		

Table C13. Length frequency of spring chinook salmon trapped at the Red River weir, 1989.

Males				Females			
Fork Length (cm)	Total Number Recovered	Percent of Total	Age Class	Fork Length (cm)	Total Number Recovered	Percent of Total	Age Class
45.7	0	0.0%		45.7	0	0.0%	
48.3	1	1.7%		48.3	0	0.0%	
50.8	1	1.7%	Jacks	50.8	0	0.0%	
53.3	1	1.7%	n=5	53.3	0	0.0%	n=0
55.9	0	0.0%	8.5%	55.9	0	0.0%	0.0%
58.4	0	0.0%		58.4	0	0.0%	
61.0	2	3.4%		61.0	0	0.0%	
63.5	0	0.0%		63.5	1	2.2%	
66.0	0	0.0%		66.0	0	0.0%	
68.6	2	3.4%	Age 4	68.6	0	0.0%	Age 4
71.1	4	6.8%	n=17	71.1	0	0.0%	n=6
73.7	4	6.8%	28.8%	73.7	2	4.4%	13.3%
76.2	0	0.0%		76.2	1	2.2%	
78.7	7	11.9%		78.7	2	4.4%	
81.3	1	1.7%		81.3	1	2.2%	
83.8	2	3.4%		83.8	3	6.7%	
86.4	0	0.0%		86.4	9	20.0%	
88.9	5	8.5%	Age 5	88.9	18	40.0%	Age 5
91.4	3	5.1%	n=37	91.4	4	8.9%	n=39
94.0	5	8.5%	62.7%	94.0	1	2.2%	86.7%
96.5	7	11.9%		96.5	3	6.7%	
99.1	10	16.9%		99.1	0	0.0%	
101.6	4	6.8%		101.6	0	0.0%	
104.1	0	0.0%		104.1	0	0.0%	
Total	59			Total	45		

Table C14. Length frequency of spring chinook salmon trapped at the Red River weir, 1990.

Males				Females			
Fork Length (cm)	Total Number Recovered	Percent of Total	Age Class	Fork Length (cm)	Total Number Recovered	Percent of Total	Age Class
38	0	0.0%		38	0	0.0%	
40	0	0.0%		40	0	0.0%	
42	0	0.0%		42	0	0.0%	
44	0	0.0%		44	0	0.0%	
46	0	0.0%		46	0	0.0%	
48	0	0.0%	Jacks	48	0	0.0%	
50	0	0.0%	n=1	50	0	0.0%	n=0
52	0	0.0%	2.7%	52	0	0.0%	0.0%
54	0	0.0%		54	0	0.0%	
56	0	0.0%		56	0	0.0%	
58	0	0.0%		58	0	0.0%	
60	0	0.0%		60	0	0.0%	
62	1	2.7%		62	0	0.0%	
64	1	2.7%		64	0	0.0%	
66	3	8.1%		66	0	0.0%	
68	2	5.4%		68	1	6.3%	
70	1	2.7%	Age 4	70	3	18.8%	Age 4
72	4	10.8%	27	72	5	31.3%	n=12
74	5	13.5%	73.0%	74	1	6.3%	75.0%
76	5	13.5%		76	2	12.5%	
78	2	5.4%		78	0	0.0%	
80	2	5.4%		80	0	0.0%	
82	2	5.4%		82	0	0.0%	
84	1	2.7%		84	1	6.3%	
86	1	2.7%		86	1	6.3%	
88	0	0.0%		88	1	6.3%	
90	2	5.4%		90	0	0.0%	
92	1	2.7/	Age 5	92	1	6.3%	Age 5
94	0	0.0%	9	94	0	0.0%	n=4
96	1	2.7%	24.3%	96	0	0.0%	25.0%
98	2	5.4%		98	0	0.0%	
100	0	0.0%		100	0	0.0%	
102	0	0.0%		102	0	0.0%	
104	1	2.7%		104	0	0.0%	
Total	37			Total	16		

Table C15. Length frequency of spring chinook salmon trapped at the Red River weir, 1991.

Males				Females			
Fork Length (cm)	Total Number Recovered	Percent of Total	Age Class	Fork Length (cm)	Total Number Recovered	Percent of Total	Age Class
38	0	0.0%		38	0	0.0%	
40	0	0.0%		40	0	0.0%	
42	0	0.0%		42	0	0.0%	
44	1	2.7%		44	0	0.0%	
46	0	0.0%		46	0	0.0%	
48	0	0.0%	Jacks	48	0	0.0%	
50	0	0.0%	n=1	50	0	0.0%	n=0
52	0	0.0%	9.1%	52	0	0.0%	0.0%
54	0	0.0%		54	0	0.0%	
56	0	0.0%		56	0	0.0%	
58	0	0.0%		58	0	0.0%	
60	0	0.0%		60	0	0.0%	
62	0	0.0%		62	0	0.0%	
64	1	2.7%		64	0	0.0%	
66	0	0.0%		66	1	6.3%	
68	0	0.0%		68	0	0.0%	
70	0	0.0%	Age 4	70	1	6.3%	Age 4
72	2	5.4%	n=4	72	0	0.0%	n=5
74	0	0.0%	36.4%	74	0	0.0%	71.4%
76	0	0.0%		76	1	6.3%	
78	1	2.7%		78	0	0.0%	
80	0	0.0%		80	1	6.3%	
82	0	0.0%		82	1	6.3%	
84	1	2.7%		84	1	6.3%	
86	0	0.0%		86	0	0.0%	
88	0	0.0%		88	0	0.0%	
90	1	2.7%		90	1	6.3%	
92	4	10.8%	Age 5	92	0	0.0%	Age 5
94	0	0.0%	n=6	94	0	0.0%	n=2
96	0	0.0%	54.5%	96	0	0.0%	28.6%
98	0	0.0%		98	0	0.0%	
100	0	0.0%		100	0	0.0%	
102	0	0.0%		102	0	0.0%	
104	0	0.0%		104	0	0.0%	
Total	11			Total	7		

Table C16. Length frequency of spring chinook salmon trapped at the Red River weir, 1992.

Males				Females			
Fork Length (cm)	Total Number Recovered	Percent of Total	Age Class	Fork Length (cm)	Total Number Recovered	Percent of Total	Age Class
38	0	0.0%		38	0	0.0%	
40	1	2.7%		40	0	0.0%	
42	0	0.0%		42	0	0.0%	
44	0	0.0%		44	0	0.0%	
46	0	0.0%		46	0	0.0%	
48	1	2.7%	Jacks	48	0	0.0%	
50	0	0.0%	n=3	50	0	0.0%	n=0
52	0	0.0%	13.0%	52	0	0.0%	0.0%
54	0	0.0%		54	0	0.0%	
56	0	0.0%		56	0	0.0%	
58	0	0.0%		58	0	0.0%	
60	0	0.0%		60	0	0.0%	
62	1	2.7%		62	0	0.0%	
64	2	5.4%		64	1	6.3%	
66	0	0.0%		66	0	0.0%	
68	4	10.8%		68	2	12.5%	
70	0	0.0%	Age 4	70	3	18.8%	Age 4
72	4	10.8%	n=19	72	1	6.3%	n=14
74	3	8.1%	82.6%	74	1	6.3%	87.5%
76	0	0.0%		76	2	12.5%	
78	3	8.1%		78	3	18.8%	
80	2	5.4%		80	1	6.3%	
82	1	2.7%		82	0	0.0%	
84	0	0.0%		84	1	6.3%	
86	1	2.7%		86	1	6.3%	
88	0	0.0%		88	0	0.0%	
90	0	0.0%		90	0	0.0%	
92	0	0.0%	Age 5	92	0	0.0%	Age 5
94	0	0.0%	n=1	94	0	0.0%	n=2
96	0	0.0%	4.3%	96	0	0.0%	12.5%
98	0	0.0%		98	0	0.0%	
100	0	0.0%		100	0	0.0%	
102	0	0.0%		102	0	0.0%	
104	0	0.0%		104	0	0.0%	
Total	23			Total	16		

Table C17. Length frequency and age composition of spring chinook salmon carcasses recovered from Biga, Elk, Bear Valley, Marsh, and Capehorn creeks (Middle Fork Salmon River drainage) during spawning ground surveys, 1989[a].

Males				Females			
Fork Length (cm)	Total Number Recovered	Percent of Total	Age Class	Fork Length (cm)	Total Number Recovered	Percent of Total	Age Class
38.1	0	0.0%		38.1	0	0.0%	
40.6	0	0.0%		40.6	0	0.0%	
43.2	1	7.7%		43.2	0	0.0%	
45.7	0	0.0%	Jacks	45.7	0	0.0%	
48.3	0	0.0%	n=1	48.3	0	0.0%	n=0
50.8	0	0.0%	7.7%	50.8	0	0.0%	0.0%
53.3	0	0.0%		53.3	0	0.0%	
55.9	0	0.0%		55.9	0	0.0%	
58.4	0	0.0%		58.4	0	0.0%	
61.0	0	0.0%		61.0	0	0.0%	
63.5	0	0.0%		63.5	0	0.0%	
66.0	0	0.0%		66.0	0	0.0%	
68.6	1	7.7%	Age 4	68.6	0	0.0%	Age 4
71.1	1	7.7%	n=7	71.1	0	0.0%	n=5
73.7	2	15.4%	53.8%	73.7	1	4.0%	20.0%
76.2	2	15.4%		76.2	4	16.0%	
78.7	1	7.7%		78.7	0	0.0%	
81.3	1	7.7%		81.3	2	8.0%	
83.8	0	0.0%		83.8	3	12.0%	
86.4	2	15.4%		86.4	1	4.0%	
88.9	0	0.0%		88.9	5	20.0%	
91.4	0	0.0%	Age 5	91.4	4	16.0%	Age 5
94.0	0	0.0%	n=5	94.0	3	12.0%	n=20
96.5	0	0.0%	38.5%	96.5	2	8.0%	80.0%
99.1	1	7.7%		99.1	0	0.0%	
101.6	0	0.0%		101.6	0	0.0%	
104.1	0	0.0%		104.1	0	0.0%	
106.7	1	7.7%		106.7	0	0.0%	
Total	13			Total	25		

[a] Fourteen fish were sampled by Nez Perce Tribe personnel. All other fish were sampled by IDFG personnel.

Table C 18. Length frequency and age composition of spring chinook salmon carcasses recovered from Big[a], Elk, Bear Valley, Marsh, Capehorn, Beaver, and Sulphur creeks (Middle Fork Salmon River drainage) during spawning ground surveys, 1990.

Males				Females			
Fork Length (cm)	Total Number Recovered	Percent of Total	Age Class	Fork Length (cm)	Total Number Recovered	Percent of Total	Age Class
38	0	0.0%		38	0	0.0%	
40	0	0.0%		40	0	0.0%	
42	0	0.0%		42	0	0.0%	
44	0	0.0%		44	0	0.0%	
46	0	0.0%		46	0	0.0%	
48	0	0.0%	Jacks	48	0	0.0%	
50	0	0.0%	n=1	50	0	0.0%	n=0
52	0	0.0%	5.0%	52	0	0.0%	0.0%
54	0	0.0%		54	0	0.0%	
56	0	0.0%		56	0	0.0%	
58	0	0.0%		58	0	0.0%	
60	0	0.0%		60	0	0.0%	
62	1	5.0%		62	0	0.0%	
64	0	0.0%		64	0	0.0%	
66	2	10.0%		66	0	0.0%	
68	1	5.0%	Age 4	68	2	7.1%	Age 4
70	1	5.0%	n=13	70	1	3.6%	n=6
72	2	10.0%	65.0%	72	1	3.6%	21.4%
74	5	25.0%		74	0	0.0%	
76	2	10.0%		76	1	3.6%	
78	0	0.0%		78	1	3.6%	
80	2	10.0%		80	1	3.6%	
82	0	0.0%		82	2	7.1%	
84	0	0.0%		84	3	10.7%	
86	1	5.0%		86	6	21.4%	
88	0	0.0%		88	2	7.1%	
90	1	5.0%	Age 5	90	5	17.9%	Age 5
92	0	0.0%	n=6	92	1	3.6%	n=22
94	1	5.0%	30.0%	94	0	0.0%	78.6%
96	0	0.0%		96	1	3.6%	
98	1	5.0%		98	0	0.0%	
100	0	0.0%		100	0	0.0%	
102	0	0.0%		102	0	0.0%	
104	0	0.0%		104	0	0.0%	
106	0	0.0%		106	1	0.0%	
Total	20			Total	28		

[a] Fourteen fish were sampled by Nez Perce Tribe fisheries personnel. Two of these fish are not included in the table as their sex was not determined (86.5 cm fork length and 60.5 cm hypural length.) All other fish were sampled by IDFG personnel.

Table C19. Length frequency and age composition of spring chinook salmon carcasses recovered from Big[a], Elk, Bear Valley, Marsh, Capehorn and Sulphur creeks (Middle Fork Salmon River drainage) during spawning ground surveys, 1991.

Males				Females			
Fork Length (cm)	Total Number Recovered	Percent of Total	Age Class	Fork Length (cm)	Total Number Recovered	Percent of Total	Age Class
38	0	0.0%		38	0	0.0%	
40	0	0.0%		40	0	0.0%	
42	0	0.0%		42	0	0.0%	
44	0	0.0%		44	0	0.0%	
46	0	0.0%		46	0	0.0%	
48	0	0.0%	Jacks	48	0	0.0%	
50	1	5.3%	n=1	50	0	0.0%	n=1
52	0	0.0%	5.3%	52	0	0.0%	0.0%
54	0	0.0%		54	0	0.0%	
56	0	0.0%		56	0	0.0%	
58	0	0.0%		58	0	0.0%	
60	0	0.0%		60	0	0.0%	
62	0	0.0%		62	0	0.0%	
64	0	0.0%		64	0	0.0%	
66	1	5.3%		66	0	0.0%	
68	1	5.3%	Age 4	68	1	2.9%	Age 4
70	1	5.3%	n=6	70	0	0.0%	n=2
72	2	10.5%	31.6%	72	0	0.0%	5.9%
74	1	5.3%		74	0	0.0%	
76	0	0.0%		76	1	2.9%	
78	0	0.0%		78	0	0.0%	
80	2	10.5%		80	4	11.8%	
82	1	5.3%		82	2	5.9%	
84	2	10.5%		84	9	26.5%	
86	1	5.3%		86	4	11.8%	
88	2	10.5%		88	4	11.8%	
90	0	0.0%	Age 5	90	3	8.8%	Age 5
92	1	5.3%	n=12	92	3	8.8%	n=32
94	0	0.0%	63.2%	94	2	5.9%	94.1%
96	1	5.3%		96	0	0.0%	
98	1	5.3%		98	0	0.0%	
100	0	0.0%		100	0	0.0%	
102	1	5.3%		102	1	2.9%	
104	0	0.0%		104	0	0.0%	
Total	19			Total	34		

[a] Twelve of the fish were sampled by Nez Perce Tribe fisheries personnel, the remaining fish were sampled by IDFG personnel.

Table C20. Length frequency and age composition of spring chinook salmon carcasses recovered from Biga, Elk, Bear Valley, Marsh[a], and Capehorn creeks (Middle Fork Salmon River drainage) during spawning ground surveys, 1992.

Males				Females			
Fork Length (cm)	Total Number Recovered	Percent of Total	Age Class	Fork Length (cm)	Total Number Recovered	Percent of Total	Age Class
38	0	0.0%		38	0	0.0%	
40	1	4.3%		40	0	0.0%	
42	0	0.0%		42	0	0.0%	
44	0	0.0%		44	0	0.0%	
46	0	0.0%		46	0	0.0%	
48	0	0.0%	Jacks	48	0	0.0%	
50	0	0.0%	n=1	50	0	0.0%	n=0
52	0	0.0%	4.3%	52	0	0.0%	0.0%
54	0	0.0%		54	0	0.0%	
56	0	0.0%		56	0	0.0%	
58	0	0.0%		58	0	0.0%	
60	0	0.0%		60	0	0.0%	
62	0	0.0%		62	0	0.0%	
64	0	0.0%		64	0	0.0%	
66	2	8.7%		66	2	8.7%	
68	1	4.3%	Age 4	68	4	17.4%	Age 4
70	4	17.4%	n=16	70	0	0.0%	n=9
72	1	4.3%	69.6%	72	0	0.0%	39.1%
74	2	8.7%		74	0	0.0%	
76	3	13.0%		76	2	8.7%	
78	3	13.0%		78	1	4.3%	
80	0	0.0%		80	1	4.3%	
82	1	4.3%		82	2	8.7%	
84	0	0.0%		84	1	4.3%	
86	1	4.3%		86	4	17.4%	
88	0	0.0%		88	4	17.4%	
90	1	4.3%	Age 5	90	0	0.0%	Age 5
92	1	4.3%	n=6	92	2	8.7%	n=14
94	1	4.3%	26.1%	94	0	0.0%	60.9%
96	1	4.3%		96	0	0.0%	
98	0	0.0%		98	0	0.0%	
100	0	0.0%		100	0	0.0%	
102	0	0.0%		102	0	0.0%	
104	0	0.0%		104	0	0.0%	
Total	23			Total	23		

[a] A 66 cm fish, unknown sex, was sampled in Marsh Creek and is not included in the table.

Table C21. Length frequency and age composition of summer chinook salmon carcasses recovered from the South Fork Salmon River during spawning ground surveys, 1989.

Males				Females			
Fork Length (cm)	Total Number Recovered	Percent of Total	Age Class	Fork Length (cm)	Total Number Recovered	Percent of Total	Age Class
38.1	0	0.0%		38.1	0	0.0%	
40.6	0	0.0%		40.6	0	0.0%	
43.2	0	0.0%		43.2	0	0.0%	
45.7	0	0.0%	Jacks	45.7	0	0.0%	
48.3	0	0.0%	n=6	48.3	0	0.0%	n=0
50.8	4	10.3%	15.4%	50.8	0	0.0%	0.0%
53.3	1	2.6%		53.3	0	0.0%	
55.9	1	2.6%		55.9	0	0.0%	
58.4	0	0.0%		58.4	0	0.0%	
61.0	0	0.0%		61.0	0	0.0%	
63.5	0	0.0%		63.5	0	0.0%	
66.0	1	2.6%		66.0	0	0.0%	
68.6	2	5.1%	Age 4	68.6	0	0.0%	Age 4
71.1	1	2.6%	n=19	71.1	0	0.0%	n=5
73.7	2	5.1%	48.7%	73.7	1	5.3%	26.3%
76.2	8	20.5%		76.2	2	10.5%	
78.7	5	12.8%		78.7	2	10.5%	
81.3	1	2.6%		81.3	0	0.0%	
83.8	3	7.7%		83.8	2	10.5%	
86.4	2	5.1%		86.4	2	10.5%	
88.9	1	2.6%		88.9	3	15.8%	
91.4	0	0.0%		91.4	1	5.3%	
94.0	0	0.0%	Age 5	94.0	5	26.3%	Age 5
96.5	0	0.0%	n=14	96.5	0	0.0%	n=14
99.1	1	2.6%	35.9%	99.1	1	5.3%	73.7%
101.6	0	0.0%		101.6	0	0.0%	
104.1	2	5.1%		104.1	0	0.0%	
106.7	2	5.1%		106.7	0	0.0%	
109.2	1	2.6%		109.2	0	0.0%	
111.8	1	2.6%		111.8	0	0.0%	
Total	39			Total	19		

Table C22. Length frequency and age composition of summer chinook salmon carcasses recovered from the South Fork Salmon River during spawning ground surveys, 1990[a].

Males				Females			
Fork Length (cm)	Total Number Recovered	Percent of Total	Age Class	Fork Length (cm)	Total Number Recovered	Percent of Total	Age Class
38	0	0.0%		38	0	0.0%	
40	0	0.0%		40	0	0.0%	
42	0	0.0%		42	0	0.0%	
44	0	0.0%		44	0	0.0%	
46	0	0.0%		46	0	0.0%	
48	0	0.0%	Jacks	48	0	0.0%	
50	0	0.0%	n=1	50	0	0.0%	n=0
52	0	0.0%	2.1%	52	0	0.0%	0.0%
54	0	0.0%		54	0	0.0%	
56	0	0.0%		56	0	0.0%	
58	0	0.0%		58	0	0.0%	
60	1	2.1%		60	0	0.0%	
62	0	0.0%		62	0	0.0%	
64	0	0.0%		64	0	0.0%	
66	3	6.3%		66	0	0.0%	
68	0	0.0%	Age 4	68	0	0.0%	Age 4
70	3	6.3%	n=35	70	1	3.0%	n=19
72	9	18.8%	72.9%	72	1	3.0%	57.6%
74	7	14.6%		74	6	18.2%	
76	4	8.3%		76	6	18.2%	
78	9	18.8%		78	5	15.2%	
80	5	10.4%		80	3	9.1%	
82	4	8.3%		82	1	3.0%	
84	0	0.0%		84	3	9.1%	
86	0	0.0%		86	1	3.0%	
88	1	2.1%		88	3	9.1%	
90	1	2.1%	Age 5	90	2	6.1%	Age 5
92	0	0.0%	n=12	92	0	0.0%	n=14
94	0	0.0%	25.0%	94	0	0.0%	42.4%
96	0	0.0%		96	1	3.0%	
98	0	0.0%		98	0	0.0%	
100	1	2.1%		100	0	0.0%	
102	0	0.0%		102	0	0.0%	
104	0	0.0%		104	0	0.0%	
Total	48			Total	33		

[a] Fortynine fish were sampled by Nez Perce Tribe fisheries personnel, all other data was collected by IDFG personnel.

Table C23. Length frequency and age composition of summer chinook salmon carcasses recovered from the South Fork Salmon River during spawning ground surveys, 1991. All fish were sampled by Nez Perce Tribe fisheries personnel

Males				Females			
Fork Length (cm)	Total Number Recovered	Percent of Total	Age Class	Fork Length (cm)	Total Number Recovered	Percent of Total	Age Class
38	0	0.0%		38	0	0.0%	
40	0	0.0%		40	0	0.0%	
42	0	0.0%		42	0	0.0%	
44	0	0.0%		44	0	0.0%	
46	0	0.0%		46	0	0.0%	
48	2	3.4%	Jacks	48	0	0.0%	
50	2	3.4%	n=9	50	0	0.0%	n=0
52	0	0.0%	15.3%	52	0	0.0%	0.0%
54	1	1.7%		54	0	0.0%	
56	2	3.4%		56	0	0.0%	
58	0	0.0%		58	0	0.0%	
60	2	3.4%		60	0	0.0%	
62	0	0.0%		62	0	0.0%	
64	4	6.8%		64	0	0.0%	
66	1	1.7%		66	0	0.0%	
68	1	1.7%	Age 4	68	0	0.0%	Age 4
70	2	3.4%	n=25	70	0	0.0%	n=15
72	3	5.1%	42.4%	72	11	15.1%	20.5%
74	5	8.5%		74	2	2.7%	
76	3	5.1%		76	2	2.7%	
78	6	10.2%		78	0	0.0%	
80	2	3.4%		80	0	0.0%	
82	1	1.7%		82	3	4.1%	
84	2	3.4%		84	4	5.5%	
86	1	1.7%		86	2	2.7%	
88	1	1.7%		88	14	19.2%	
90	2	3.4%	Age 5	90	13	17.8%	Age 5
92	3	5.1%	n=25	92	11	15.1%	n=58
94	1	1.7%	42.4%	94	6	8.2%	79.5%
96	7	11.9%		96	3	4.1%	
98	1	1.7%		98	1	1.4%	
100	3	5.1%		100	1	1.4%	
102	0	0.0%		102	0	0.0%	
104	1	1.7%		104	0	0.0%	
Total	59			Total	73		

Table C24. Length frequency and age composition of summer chinook salmon carcasses recovered from the South Fork Salmon River and East Fork South Fork Salmon River during spawning ground surveys, 1992.

Males				Females			
Fork Length (cm)	Total Number Recovered	Percent of Total	Age Class	Fork Length (cm)	Total Number Recovered	Percent of Total	Age Class
38	0	0.0%		38	0	0.0%	
40	0	0.0%		40	0	0.0%	
42	0	0.0%		42	0	0.0%	
44	0	0.0%		44	0	0.0%	
46	0	0.0%		46	0	0.0%	
48	0	0.0%	Jacks	48	0	0.0%	
50	0	0.0%	n=0	50	0	0.0%	n=0
52	0	0.0%	0.0%	52	0	0.0%	0.0%
54	0	0.0%		54	0	0.0%	
56	0	0.0%		56	0	0.0%	
58	0	0.0%		58	0	0.0%	
60	0	0.0%		60	0	0.0%	
62	0	0.0%		62	0	0.0%	
64	0	0.0%		64	0	0.0%	
66	0	0.0%		66	0	0.0%	
68	2	28.6%	Age 4	68	0	0.0%	Age 4
70	1	14.3%	n=5	70	0	0.0%	n=1
72	1	14.3%	71.4%	72	0	0.0%	50.0%
74	0	0.0%		74	0	0.0%	
76	0	0.0%		76	1	50.0%	
78	1	14.3%		78	0	0.0%	
80	0	0.0%		80	0	0.0%	
82	1	14.3%		82	0	0.0%	
84	1	14.3%		84	1	50.0%	
86	0	0.0%		86	0	0.0%	
88	0	0.0%		88	0	0.0%	
90	0	0.0%	Age 5	90	0	0.0%	Age 5
92	0	0.0%	n=2	92	0	0.0%	n=1
94	0	0.0%	28.6%	94	0	0.0%	50.0%
96	0	0.0%		96	0	0.0%	
98	0	0.0%		98	0	0.0%	
100	0	0.0%		100	0	0.0%	
102	0	0.0%		102	0	0.0%	
104	0	0.0%		104	0	0.0%	
Total	7			Total	2		

Table C25. Length frequency and age composition of summer chinook salmon carcasses recovered from Johnson Creek during spawning ground surveys, 1989[a].

Males				Females			
Fork Length (cm)	Total Number Recovered	Percent of Total	Age Class	Fork Length (cm)	Total Number Recovered	Percent of Total	Age Class
38.1	0	0.0%		38.1	0	0.0%	
40.6	0	0.0%		40.6	0	0.0%	
43.2	0	0.0%		43.2	0	0.0%	
45.7	1	11.1%	Jacks	45.7	0	0.0%	
48.3	0	0.0%	n=1	48.3	0	0.0%	n=0
50.8	0	0.0%	11.1%	50.8	0	0.0%	0.0%
53.3	0	0.0%		53.3	0	0.0%	
55.9	0	0.0%		55.9	0	0.0%	
58.4	0	0.0%		58.4	0	0.0%	
61.0	0	0.0%		61.0	0	0.0%	
63.5	0	0.0%		63.5	0	0.0%	
66.0	0	0.0%		66.0	0	0.0%	
68.6	0	0.0%	Age 4	68.6	0	0.0%	Age 4
71.1	0	0.0%	n=2	71.1	2	7.7%	n=9
73.7	1	11.1%	22.2%	73.7	3	11.5%	34.6%
76.2	1	11.1%		76.2	2	7.7%	
78.7	0	0.0%		78.7	2	7.7%	
81.3	1	11.1%		81.3	3	11.5%	
83.8	2	22.2%		83.8	2	7.7%	
86.4	1	11.1%		86.4	5	19.2%	
88.9	1	11.1%	Age 5	88.9	2	7.7%	Age 5
91.4	1	11.1%	n=6	91.4	1	3.8%	n=17
94.0	0	0.0%	66.7%	94.0	1	3.8%	65.4%
96.5	0	0.0%		96.5	1	3.8%	
99.1	0	0.0%		99.1	1	3.8%	
101.6	0	0.0%		101.6	0	0.0%	
104.1	0	0.0%		104.1	1	3.8%	
Total	9			Total	26		

[a] Twentythree fish were sampled by Nez Perce Tribe fisheries personnel, all other fish were measured by IDFG personnel.

Table C26. Length frequency and age composition of summer chinook salmon carcasses recovered from Johnson Creek during spawning ground surveys, 1990[a].

Males				Females			
Fork Length (cm)	Total Number Recovered	Percent of Total	Age Class	Fork Length (cm)	Total Number Recovered	Percent of Total	Age Class
38	0	0.0%		38	0	0.0%	
40	0	0.0%		40	0	0.0%	
42	0	0.0%		42	0	0.0%	
44	0	0.0%		44	0	0.0%	
46	0	0.0%		46	0	0.0%	
48	0	0.0%	Jacks	48	0	0.0%	
50	0	0.0%	n=0	50	0	0.0%	n=0
52	0	0.0%	0.0%	52	0	0.0%	0.0%
54	0	0.0%		54	0	0.0%	
56	0	0.0%		56	0	0.0%	
58	0	0.0%		58	0	0.0%	
60	0	0.0%		60	0	0.0%	
62	0	0.0%		62	0	0.0%	
64	0	0.0%		64	0	0.0%	
66	0	0.0%		66	0	0.0%	
68	3	11.5%	Age 4	68	0	0.0%	Age 4
70	4	15.4%	n=22	70	1	10.0%	n=5
72	1	3.8%	84.6%	72	1	10.0%	50.0%
74	6	23.1%		74	0	0.0%	
76	4	15.4%		76	3	30.0%	
78	4	15.4%		78	0	0.0%	
80	1	3.8%		80	1	10.0%	
82	1	3.8%		82	0	0.0%	
84	2	7.7%		84	7	10.0%	
86	0	0.0%		86	0	0.0%	
88	0	0.0%		88	0	0.0%	
90	0	0.0%	Age 5	90	2	20.0%	Age 5
92	0	0.0%	n=4	92	0	0.0%	n=5
94	0	0.0%	15.4%	94	1	10.0%	50.0%
96	0	0.0%		96	0	0.0%	
98	0	0.0%		98	0	0.0%	
100	0	0.0%		100	0	0.0%	
102	0	0.0%		102	0	0.0%	
104	0	0.0%		104	0	0.0%	
Total	26			Total	10		

[a] Nine fish were sampled by Nez Perce Tribe fisheries personnel, all other fish were sampled by IDFG personnel.

Table C27. Length frequency and age composition of summer chinook salmon carcasses recovered from Johnson Creek during spawning ground surveys, 1991. All fish were sampled by Nez Perce Tribe fisheries personnel.

Males				Females			
Fork Length (cm)	Total Number Recovered	Percent of Total	Age Class	Fork Length (cm)	Total Number Recovered	Percent of Total	Age Class
38	0	0.0%		38	0	0.0%	
40	0	0.0%		40	0	0.0%	
42	0	0.0%		42	0	0.0%	
44	0	0.0%		44	0	0.0%	
46	0	0.0%		46	0	0.0%	
48	0	0.0%	Jacks	48	0	0.0%	
50	0	0.0%	n=3	50	0	0.0%	n=0
52	1	5.0%	15.0%	52	0	0.0%	0.0%
54	1	5.0%		54	0	0.0%	
56	0	0.0%		56	0	0.0%	
58	1	5.0%		58	0	0.0%	
60	0	0.0%		60	0	0.0%	
62	0	0.0%		62	0	0.0%	
64	0	0.0%		64	0	0.0%	
66	1	5.0%		66	0	0.0%	
68	2	10.0%	Age 4	68	0	0.0%	Age 4
70	1	5.0%	n=8	70	1	3.4%	n=3
72	1	5.0%	40.0%	72	0	0.0%	10.3%
74	2	10.0%		74	0	0.0%	
76	1	5.0%		76	1	3.4%	
78	0	0.0%		78	1	3.4%	
80	1	5.0%		80	1	3.4%	
82	1	5.0%		82	1	3.4%	
84	1	5.0%		84	4	13.8%	
86	1	5.0%		86	5	17.2%	
88	0	0.0%		88	8	27.6%	
90	2	10.0%	Age 5	90	3	10.3%	Age 5
92	2	10.0%	n=9	92	3	10.3%	n=26
94	0	0.0%	45.0%	94	1	3.4%	89.7%
96	1	5.0%		96	0	0.0%	
98	0	0.0%		98	0	0.0%	
100	0	0.0%		100	0	0.0%	
102	0	0.0%		102	0	0.0%	
104	0	0.0%		104	0	0.0%	
Total	20			Total	29		

Table C28. Length frequency and age composition of summer chinook salmon carcasses recovered from Johnson Creek during spawning ground surveys, 1992.

Males				Females			
Fork Length (cm)	Total Number Recovered	Percent of Total	Age Class	Fork Length (cm)	Total Number Recovered	Percent of Total	Age Class
38	0	0.0%		38	0	ERR	
40	0	0.0%		40	0	ERR	
42	0	0.0%		42	0	ERR	
44	0	0.0%		44	0	ERR	
46	0	0.0%		46	0	ERR	
48	0	0.0%	Jacks	48	0	ERR	
50	0	0.0%	n=0	50	0	ERR	0
52	0	0.0%	0.0%	52	0	ERR	ERR
54	0	0.0%		54	0	ERR	
56	0	0.0%		56	0	ERR	
58	0	0.0%		58	0	ERR	
60	0	0.0%		60	0	ERR	
62	0	0.0%		62	0	ERR	
64	0	0.0%		64	0	ERR	
66	0	0.0%		66	0	ERR	
68	0	0.0%	Age 4	68	0	ERR	Age 4
70	1	100.0%	n=1	70	0	ERR	0
72	0	0.0%	100.0%	72	0	ERR	ERR
74	0	0.0%		74	0	ERR	
76	0	0.0%		76	0	ERR	
78	0	0.0%		78	0	ERR	
80	0	0.0%		80	0	ERR	
82	0	0.0%		82	0	ERR	
84	0	0.0%		84	0	ERR	
86	0	0.0%		86	0	ERR	
88	0	0.0%		88	0	ERR	
90	0	0.0%	Age 5	90	0	ERR	Age 5
92	0	0.0%	n=0	92	0	ERR	0
94	0	0.0%	0.0%	94	0	ERR	ERR
96	0	0.0%		96	0	ERR	
98	0	0.0%		98	0	ERR	
100	0	0.0%		100	0	ERR	
102	0	0.0%		102	0	ERR	
104	0	0.0%		104	0	ERR	
Total	1			Total	0		

Table C29. Length frequency and age composition of summer chinook salmon carcasses recovered from Secesh River and Lake Creek during spawning ground surveys, 1989[a].

Males				Females			
Fork Length (cm)	Total Number Recovered	Percent of Total	Age Class	Fork Length (cm)	Total Number Recovered	Percent of Total	Age Class
38.1	0	0.0%		38.1	0	0.0%	
40.6	0	0.0%		40.6	0	0.0%	
43.2	0	0.0%		43.2	0	0.0%	
45.7	0	0.0%	Jacks	45.7	0	0.0%	
48.3	3	6.3%	n=10	48.3	0	0.0%	n=0
50.8	3	6.3%	20.8%	50.8	0	0.0%	0.0%
53.3	1	2.1%		53.3	0	0.0%	
55.9	1	2.1%		55.9	0	0.0%	
58.4	1	2.1%		58.4	0	0.0%	
61.0	1	2.1%		61.0	0	0.0%	
63.5	0	0.0%		63.5	0	0.0%	
66.0	1	2.1%		66.0	1	1.8%	
68.6	0	0.0%	Age 4	68.6	0	0.0%	Age 4
71.1	1	2.1%	n=23	71.1	6	10.9%	n=38
73.7	2	4.2%	47.9%	73.7	10	18.2%	69.1%
76.2	7	14.6%		76.2	12	21.8%	
78.7	12	25.0%		78.7	9	16.4%	
81.3	5	10.4%		81.3	5	9.1%	
83.8	7	14.6%		83.8	3	5.5%	
86.4	1	2.1%		86.4	2	3.6%	
88.9	0	0.0%	Age 5	88.9	4	7.3%	Age 5
91.4	0	0.0%	n=15	91.4	1	1.8%	n=17
94.0	1	2.1%	31.3%	94.0	1	1.8%	30.9%
96.5	0	0.0%		96.5	1	1.8%	
99.1	1	2.1%		99.1	0	0.0%	
101.6	0	0.0%		101.6	0	0.0%	
104.1	0	0.0%		104.1	0	0.0%	
Total	48			Total	55		

[a] Twentythree fish were sampled by Nez Perce Tribe fisheries personnel, all other fish were sampled by IDFG personnel.

Table C30. Length frequency and age composition of summer chinook salmon carcasses recovered from Secesh River and Lake Creek during spawning ground surveys, 1990[a].

Males				Females			
Fork Length (cm)	Total Number Recovered	Percent of Total	Age Class	Fork Length (cm)	Total Number Recovered	Percent of Total	Age Class
38	0	0.0%		38	0	0.0%	
40	0	0.0%		40	0	0.0%	
42	0	0.0%		42	0	0.0%	
44	0	0.0%		44	0	0.0%	
46	0	0.0%		46	0	0.0%	
48	0	0.0%	Jacks	48	0	0.0%	
50	0	0.0%	n=0	50	0	0.0%	n=0
52	0	0.0%	0.0%	52	0	0.0%	0.0%
54	0	0.0%		54	0	0.0%	
56	0	0.0%		56	0	0.0%	
58	0	0.0%		58	0	0.0%	
60	0	0.0%		60	0	0.0%	
62	0	0.0%		62	0	0.0%	
64	0	0.0%		64	0	0.0%	
66	0	0.0%		66	0	0.0%	
68	0	0.0%	Age 4	68	0	0.0%	Age 4
70	2	13.3%	n=7	70	2	7.7%	n=14
72	1	6.7%	46.7%	72	2	7.7%	53.8%
74	1	6.7%		74	5	19.2%	
76	2	13.3%		76	2	7.7%	
78	1	6.7%		78	3	11.5%	
80	5	33.3%		80	3	11.5%	
82	0	0.0%		82	3	11.5%	
84	1	6.7%		84	2	7.7%	
86	0	0.0%		86	2	7.7%	
88	0	0.0%		88	0	0.0%	
90	1	6.7%	Age 5	90	1	3.8%	Age 5
92	0	0.0%	n=8	92	1	3.8%	n=12
94	0	0.0%	53.3%	94	0	0.0%	46.2%
96	0	0.0%		96	0	0.0%	
98	0	0.0%		98	0	0.0%	
100	1	6.7%		100	0	0.0%	
102	0	0.0%		102	0	0.0%	
104	0	0.0%		104	0	0.0%	
Total	15			Total	26		

[a] Thirty two fish were sampled by Nez Perce Tribe fisheries personnel. Two of these fish are not included in the table as the se% was not determined (79 and 93.5 cm fork length).

Table C31. Length frequency and age composition of summer chinook salmon carcasses recovered from Secesh River and Lake Creek during spawning ground surveys, 1991[a].

Males				Females			
Fork Length (cm)	Total Number Recovered	Percent of Total	Age Class	Fork Length (cm)	Total Number Recovered	Percent of Total	Age Class
38	0	0.0%		38	0	0.0%	
40	0	0.0%		40	0	0.0%	
42	0	0.0%		42	0	0.0%	
44	0	0.0%		44	0	0.0%	
46	0	0.0%		46	0	0.0%	
48	0	0.0%	Jacks	48	0	0.0%	
50	0	0.0%	n=4	50	0	0.0%	n=0
52	1	3.8%	15.4%	52	0	0.0%	0.0%
54	0	0.0%		54	0	0.0%	
56	2	7.7%		56	0	0.0%	
58	0	0.0%		58	0	0.0%	
60	1	3.8%		60	0	0.0%	
62	0	0.0%		62	0	0.0%	
64	1	3.8%		64	1	2.4%	
66	0	0.0%		66	1	2.4%	
68	2	7.7%	Age 4	68	1	2.4%	Age 4
70	1	3.8%	n=11	70	1	2.4%	n=8
72	3	11.5%	42.3%	72	1	2.4%	19.0%
74	3	11.5%		74	1	2.4%	
76	0	0.0%		76	0	0.0%	
78	1	3.8%		78	2	4.8%	
80	1	3.8%		80	0	0.0%	
82	0	0.0%		82	7	16.7%	
84	1	3.8%		84	4	9.5%	
86	1	3.8%		86	4	9.5%	
88	0	0.0%		88	4	9.5%	
90	3	11.5%	Age 5	90	5	11.9%	Age 5
92	0	0.0%	n=11	92	5	11.9%	n=34
94	1	3.8%	42.3%	94	3	7.1%	81.0%
96	0	0.0%		96	0	0.0%	
98	1	3.8%		98	0	0.0%	
100	1	3.8%		100	0	0.0%	
102	1	3.8%		102	1	2.4%	
104	1	3.8%		104	1	2.4%	
Total	26			Total	42		

[a] Fortynine fish were sampled by Nez Perce tribe fisheries personnel. Three of these fish are not included in the table as the se% was not determined (91, 82, and 77 cm fork length).

Table C32. Length frequency and age composition of summer chinook salmon carcasses recovered from Secesh River and Lake Creek during spawning ground surveys, 1992.

Males				Females			
Fork Length (cm)	Total Number Recovered	Percent of Total	Age Class	Fork Length (cm)	Total Number Recovered	Percent of Total	Age Class
38	0	0.0%		38	0	0.0%	
40	0	0.0%		40	0	0.0%	
42	0	0.0%		42	0	0.0%	
44	0	0.0%		44	0	0.0%	
46	0	0.0%		46	0	0.0%	
48	0	0.0%	Jacks	48	0	0.0%	
50	0	0.0%	n=0	50	0	0.0%	n=1
52	0	0.0%	0.0%	52	0	0.0%	7.7%
54	0	0.0%		54	0	0.0%	
56	0	0.0%		56	1	7.7%	
58	0	0.0%		58	0	0.0%	
60	0	0.0%		60	0	0.0%	
62	0	0.0%		62	0	0.0%	
64	0	0.0%		64	0	0.0%	
66	0	0.0%		66	1	7.7%	
68	2	13.3%	Age 4	68	1	7.7%	Age 4
70	2	13.3%	n=11	70	1	7.7%	n=11
72	2	13.3%	73.3%	72	6	46.2%	84.6%
74	1	6.7%		74	0	0.0%	
76	3	20.0%		76	1	7.7%	
78	1	6.7%		78	1	7.7%	
80	2	13.3%		80	1	7.7%	
82	0	0.0%		82	0	0.0%	
84	2	13.3%		84	0	0.0%	
86	0	0.0%		86	0	0.0%	
88	0	0.0%		88	0	0.0%	
90	0	0.0%	Age 5	90	0	0.0%	Age 5
92	0	0.0%	n=4	92	0	0.0%	n=1
94	0	0.0%	26.7%	94	0	0.0%	7.7%
96	0	0.0%		96	0	0.0%	
98	0	0.0%		98	0	0.0%	
100	0	0.0%		100	0	0.0%	
102	0	0.0%		102	0	0.0%	
104	0	0.0%		104	0	0.0%	
Total	15			Total	13		

Table C33. Length frequency of spring chinook salmon trapped at the Powell (Lochsa River) weir, 1989.

Males				Females			
Fork Length (cm)	Total Number Recovered	Percent of Total	Age Class	Fork Length (cm)	Total Number Recovered	Percent of Total	Age Class
38	0	0.0%		38	0	0.0%	
40	0	0.0%		40	0	0.0%	
42	0	0.0%		42	0	0.0%	
44	2	1.8%		44	0	0.0%	
46	0	0.0%		46	0	0.0%	
48	12	11.0%	Jacks	48	0	0.0%	
50	5	4.6%	n=27	50	0	0.0%	n=0
52	2	1.8%	24.5%	52	0	0.0%	0.0%
54	2	1.8%		54	0	0.0%	
56	1	0.9%		56	0	0.0%	
58	1	0.9%		58	0	0.0%	
60	0	0.0%		60	0	0.0%	
62	2	1.8%		62	0	0.0%	
64	0	0.0%		64	1	1.4%	
66	3	2.8%		66	1	1.4%	
68	2	1.8%		68	2	2.9%	
70	4	3.7%	Age 4	70	5	7.1%	Age 4
72	8	7.3%	n=71	72	10	14.3%	n=40
74	13	11.9%	64.5%	74	9	12.9%	90.9%
76	12	11.0%		76	4	5.7%	
78	13	11.9%		78	4	5.7%	
80	13	11.9%		80	2	2.9%	
82	3	2.8%		82	2	2.9%	
84	2	1.8%		84	2	2.9%	
86	3	2.8%		86	0	0.0%	
88	0	0.0%		88	0	0.0%	
90	0	0.0%		90	0	0.0%	
92	0	0.0%	Age 5	92	1	1.4%	Age 5
94	1	0.9%	n=12	94	1	1.4%	n=4
96	1	0.9%	10.9%	96	0	0.0%	9.1%
98	2	1.8%		98	0	0.0%	
100	2	1.8%		100	0	0.0%	
102	1	0.9%		102	0	0.0%	
104	0	0.0%		104	0	0.0%	
Total	110			Total	44		

Table C34. Length frequency of spring chinook salmon trapped at the Powell (Lochsa River) weir, 1990.

Males				Females			
Fork Length (cm)	Total Number Recovered	Percent of Total	Age Class	Fork Length (cm)	Total Number Recovered	Percent of Total	Age Class
38	0	0.0%		38	0	0.0%	
40	0	0.0%		40	0	0.0%	
42	0	0.0%		42	0	0.0%	
44	0	0.0%		44	0	0.0%	
46	0	0.0%		46	0	0.0%	
48	0	0.0%	Jacks	48	0	0.0%	
50	0	0.0%	n=2	50	0	0.0%	n=1
52	0	0.0%	1.8%	52	0	0.0%	1.4%
54	1	0.9%		54	0	0.0%	
56	0	0.0%		56	0	0.0%	
58	0	0.0%		58	0	0.0%	
60	0	0.0%		60	0	0.0%	
62	1	0.9%		62	1	1.4%	
64	1	0.9%		64	0	0.0%	
66	0	0.0%		66	1	1.4%	
68	3	2.8%		68	4	5.7%	
70	5	4.6%	Age 4	70	5	7.1%	Age 4
72	8	7.3%	n=91	72	9	12.9%	n=65
74	12	11.0%	83.5%	74	9	12.9%	92.9%
76	18	16.5%		76	10	14.3%	
78	18	16.5%		78	12	17.1%	
80	16	14.7%		80	12	17.1%	
82	10	9.2%		82	3	4.3%	
84	4	3.7%		84	2	2.9%	
86	4	3.7%		86	0	0.0%	
88	4	3.7%		88	1	1.4%	
90	2	1.8%		90	0	0.0%	
92	1	0.9%	Age 5	92	1	1.4%	Age 5
94	0	0.0%	n=16	94	0	0.0%	n=4
96	0	0.0%	14.7%	96	0	0.0%	5.7%
98	1	0.9%		98	0	0.0%	
100	0	0.0%		100	0	0.0%	
102	0	0.0%		102	0	0.0%	
104	0	0.0%		104	0	0.0%	
Total	109			Total	70		

Table C35. Length frequency of spring chinook salmon trapped at the Powell (Lochsa River) weir, 1991.

Males				Females			
Fork Length (cm)	Total Number Recovered	Percent of Total	Age Class	Fork Length (cm)	Total Number Recovered	Percent of Total	Age Class
38	0	0.0%		38	0	0.0%	
40	0	0.0%		40	0	0.0%	
42	0	0.0%		42	0	0.0%	
44	1	0.9%		44	0	0.0%	
46	0	0.0%		46	0	0.0%	
48	0	0.0%	Jacks	48	0	0.0%	
50	0	0.0%	n=7	50	0	0.0%	n=0
52	1	0.9%	25.0%	52	0	0.0%	0.0%
54	0	0.0%		54	0	0.0%	
56	0	0.0%		56	0	0.0%	
58	4	3.7%		58	0	0.0%	
60	1	0.9%		60	0	0.0%	
62	0	0.0%		62	0	0.0%	
64	0	0.0%		64	0	0.0%	
66	0	0.0%		66	0	0.0%	
68	3	2.8%		68	0	0.0%	
70	0	0.0%	Age 4	70	2	2.9%	Age 4
72	1	0.9%	n=13	72	0	0.0%	n=3
74	0	0.0%	46.4%	74	0	0.0%	60.0%
76	2	1.8%		76	0	0.0%	
78	1	0.9%		78	0	0.0%	
80	3	2.8%		80	0	0.0%	
82	3	2.8%		82	1	1.4%	
84	2	1.8%		84	1	1.4%	
86	0	0.0%		86	0	0.0%	
88	2	1.8%		88	1	1.4%	
90	3	2.8%		90	0	0.0%	
92	0	0.0%	Age 5	92	0	0.0%	Age 5
94	0	0.0%	n=8	94	0	0.0%	n=2
96	1	0.9%	28.6%	96	0	0.0%	40.0%
98	0	0.0%		98	0	0.0%	
100	0	0.0%		100	0	0.0%	
102	0	0.0%		102	0	0.0%	
104	0	0.0%		104	0	0.0%	
Total	28			Total	5		

Table C36. Length frequency of spring chinook salmon trapped at the Powell (Lochsa River) weir, 1992.

Males				Females			
Fork Length (cm)	Total Number Recovered	Percent of Total	Age Class	Fork Length (cm)	Total Number Recovered	Percent of Total	Age Class
38	0	0.0%		38	0	0.0%	
40	1	0.9%		40	0	0.0%	
42	0	0.0%		42	0	0.0%	
44	0	0.0%		44	0	0.0%	
46	2	1.8%		46	0	0.0%	
48	0	0.0%	Jacks	48	0	0.0%	
50	1	0.9%	n=6	50	0	0.0%	n=0
52	1	0.9%	4.4%	52	0	0.0%	0.0%
54	0	0.0%		54	0	0.0%	
56	1	0.9%		56	0	0.0%	
58	0	0.0%		58	0	0.0%	
60	0	0.0%		60	0	0.0%	
62	0	0.0%		62	0	0.0%	
64	0	0.0%		64	0	0.0%	
66	1	0.9%		66	2	2.9%	
68	1	0.9%		68	6	8.6%	
70	6	5.5%	Age 4	70	11	15.7%	Age 4
72	9	8.3%	n=118	72	21	30.0%	n=131
74	35	32.1%	86.1%	74	40	57.1%	98.5%
76	26	23.9%		76	25	35.7%	
78	23	21.1%		78	17	24.3%	
80	9	8.3%		80	6	8.6%	
82	8	7.3%		82	3	4.3%	
84	5	4.6%		84	0	0.0%	
86	2	1.8%		86	1	1.4%	
88	2	1.8%		88	1	1.4%	
90	2	1.8%		90	0	0.0%	
92	0	0.0%	Age 5	92	0	0.0%	Age 5
94	0	0.0%	n=13	94	0	0.0%	n=2
96	1	0.9%	9.5%	96	0	0.0%	1.5%
98	1	0.9%		98	0	0.0%	
100	0	0.0%		100	0	0.0%	
102	0	0.0%		102	0	0.0%	
104	0	0.0%		104	0	0.0%	
Total	137			Total	133		

Table C37. Length frequency of spring chinook salmon trapped at the Crooked River weir, 1990.

Males				Females			
Fork Length (cm)	Total Number Recovered	Percent of Total	Age Class	Fork Length (cm)	Total Number Recovered	Percent of Total	Age Class
38	0	0.0%		38	0	0.0%	
40	0	0.0%		40	0	0.0%	
42	0	0.0%		42	0	0.0%	
44	0	0.0%		44	0	0.0%	
46	0	0.0%		46	0	0.0%	
48	0	0.0%	Jacks	48	0	0.0%	
50	0	0.0%	n=1	50	0	0.0%	n=0
52	0	0.0%	4.3%	52	0	0.0%	0.0%
54	0	0.0%		54	0	0.0%	
56	0	0.0%		56	0	0.0%	
58	0	0.0%		58	0	0.0%	
60	0	0.0%		60	0	0.0%	
62	1	6.7%		62	0	0.0%	
64	1	6.7%		64	0	0.0%	
66	0	0.0%		66	0	0.0%	
68	1	6.7%		68	0	0.0%	
70	1	6.7%	Age 4	70	0	0.0%	Age 4
72	4	26.7%	n=20	72	1	20.0%	n=4
74	5	33.3%	87.0%	74	0	0.0%	66.7%
76	4	26.7%		76	2	40.0%	
78	1	6.7%		78	1	20.0%	
80	2	13.3%		80	0	0.0%	
82	1	6.7%		82	0	0.0%	
84	1	6.7%		84	0	0.0%	
86	0	0.0%		86	1	20.0%	
88	0	0.0%		88	0	0.0%	
90	0	0.0%		90	0	0.0%	
92	0	0.0%	Age 5	92	0	0.0%	Age 5
94	1	6.7%	n=2	94	0	0.0%	n=2
96	0	0.0%	8.7%	96	0	0.0%	33.3%
98	0	0.0%		98	0	0.0%	
100	0	0.0%		100	0	0.0%	
102	0	0.0%		102	0	0.0%	
104	0	0.0%		104	1	20.0%	
Total	23			Total	6		

Table C38. Length frequency of spring chinook salmon trapped at the Crooked River weir, 1991.

Males				Females			
Fork Length (cm)	Total Number Recovered	Percent of Total	Age Class	Fork Length (cm)	Total Number Recovered	Percent of Total	Age Class
38	0	0.0%		38	0	0.0%	
40	0	0.0%		40	0	0.0%	
42	0	0.0%		42	0	0.0%	
44	0	0.0%		44	0	0.0%	
46	0	0.0%		46	0	0.0%	
48	1	6.7%	Jacks	48	0	0.0%	
50	1	6.7%	n=2	50	0	0.0%	n=0
52	0	0.0%	13.3%	52	0	0.0%	0.0%
54	0	0.0%		54	0	0.0%	
56	0	0.0%		56	0	0.0%	
58	0	0.0%		58	0	0.0%	
60	0	0.0%		60	0	0.0%	
62	0	0.0%		62	0	0.0%	
64	1	6.7%		64	0	0.0%	
66	1	6.7%		66	1	20.0%	
68	2	13.3%		68	1	20.0%	
70	0	0.0%	Age 4	70	1	20.0%	Age 4
72	2	13.3%	n=8	72	0	0.0%	n=5
74	0	0.0%	53.3%	74	0	0.0%	100.0%
76	1	6.7%		76	1	20.0%	
78	0	0.0%		78	0	0.0%	
80	1	6.7%		80	0	0.0%	
82	0	0.0%		82	1	20.0%	
84	1	6.7%		84	0	0.0%	
86	1	6.7%		86	0	0.0%	
88	0	0.0%		88	0	0.0%	
90	0	0.0%		90	0	0.0%	
92	1	6.7%	Age 5	92	0	0.0%	Age 5
94	2	13.3%	n=5	94	0	0.0%	n=0
96	0	0.0%	33.3%	96	0	0.0%	0.0%
98	0	0.0%		98	0	0.0%	
100	0	0.0%		100	0	0.0%	
102	0	0.0%		102	0	0.0%	
104	0	0.0%		104	0	0.0%	
Total	15			Total	5		

Table C39. Length frequency of spring chinook salmon trapped at the Crooked River weir, 1992.

Males				Females			
Fork Length (cm)	Total Number Recovered	Percent of Total	Age Class	Fork Length (cm)	Total Number Recovered	Percent of Total	Age Class
38	0	0.0%		38	0	0.0%	'
40	0	0.0%		40	0	0.0%	
42	0	0.0%		42	0	0.0%	
44	1	6.7%		44	0	0.0%	
46	1	6.7%		46	0	0.0%	
48	0	0.0%	Jacks	48	0	0.0%	
50	1	6.7%	n=11	50	0	0.0%	n=0
52	1	6.7%	8.5%	52	0	0.0%	0.0%
54	1	6.7%		54	0	0.0%	
56	0	0.0%		56	0	0.0%	
58	1	6.7%		58	0	0.0%	
60	1	6.7%		60	0	0.0%	
62	4	26.7%		62	0	0.0%	
64	2	13.3%		64	2	40.0%	
66	1	6.7%		66	3	60.0%	
68	11	73.3%		68	6	120.0%	
70	10	66.7%	Age 4	70	10	200.0%	Age 4
72	16	106.7%	n=114	72	17	340.0%	n=91
74	19	126.7%	88.4%	74	23	460.0%	96.8%
76	19	126.7%		76	17	340.0%	
78	21	140.0%		78	9	180.0%	
80	12	80.0%		80	4	80.0%	
82	3	20.0%		82	0	0.0%	
84	1	6.7%		84	0	0.0%	
86	1	6.7%		86	1	20.0%	
88	1	6.7%		88	1	20.0%	
90	0	0.0%		90	1	20.0%	
92	1	6.7%	Age 5	92	0	0.0%	Age 5
94	0	0.0%	n=4	94	0	0.0%	n=3
96	0	0.0%	3.1%	96	0	0.0%	3.2%
98	0	0.0%		98	0	0.0%	
100	0	0.0%		100	0	0.0%	
102	0	0.0%		102	0	0.0%	
104	0	0.0%		104	0	0.0%	
Total	129			Total	94		

Appendix D. Maps showing 1989 chinook salmon redd count transects and numbers of redds counted.

LEGEND

Transect Boundaries

Ground Redd Counts

Helicopter Redd Counts

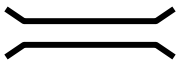
Road

Trail

Forest Service Station

Campground

Road or Highway Bridge

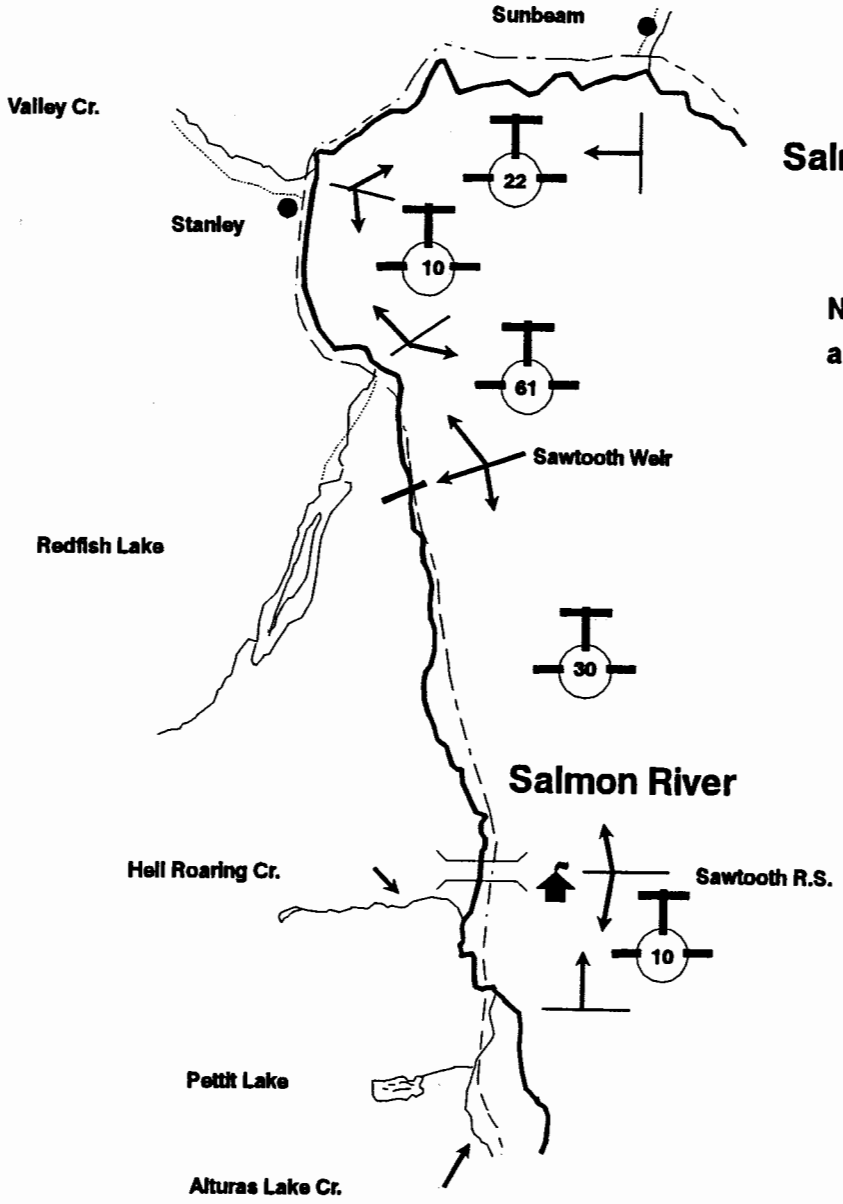


Pack Bridge

Transect Codes (See Appendix B) [WS-##], [NS-##], [WC-##], etc.

DRAINAGE Salmon River
STREAM Salmon River
OBSERVATION CONDITIONS Good
TIMING Early On Time Late

SURVEY DATE 9/6/89
MAP SCALE 0.78 cm = 1 mile
OBSERVER Davis
REMARKS Helicopter



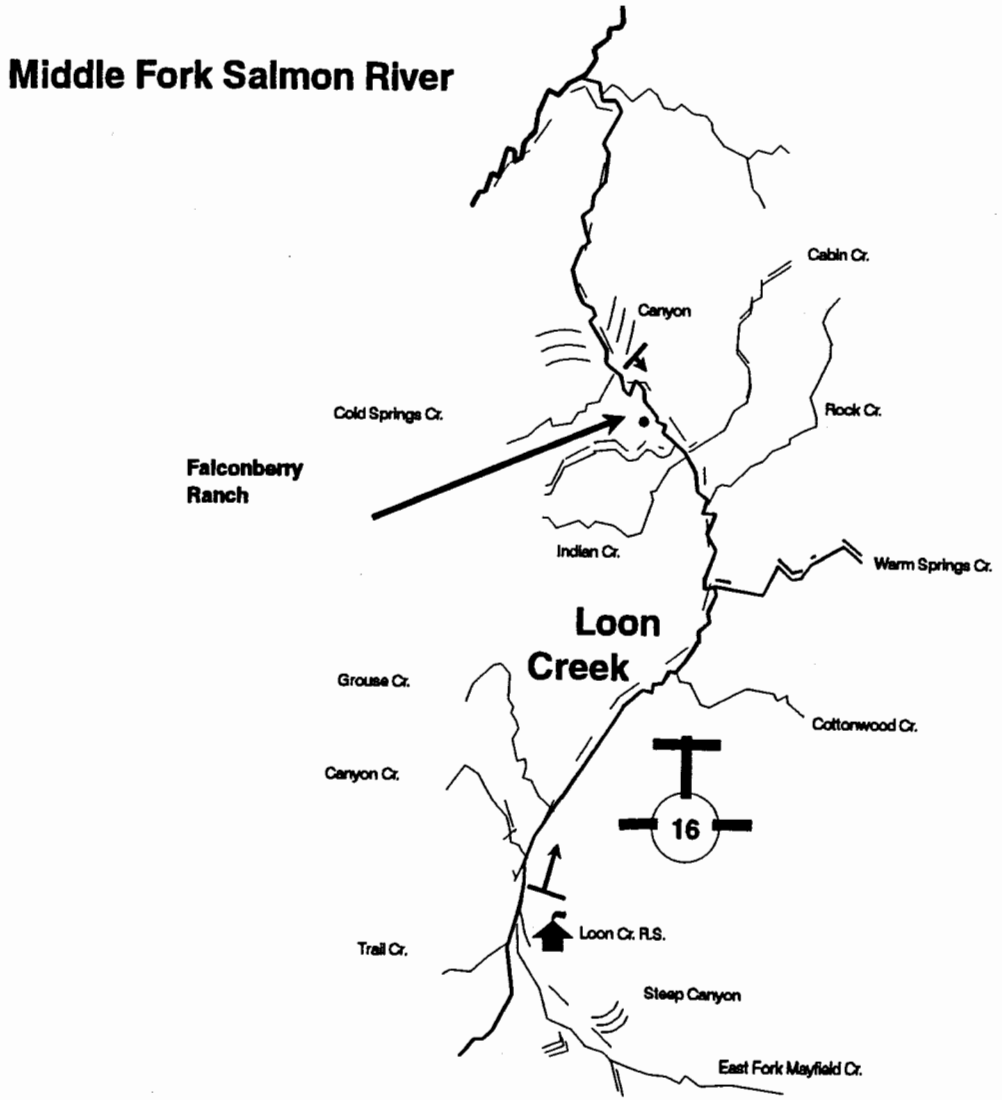
Number of Spring Chinook released above Sawtooth weir:

Males	104
Jacks	293
Females	73

Total trap count: 888

DRAINAGE Middle Fork Salmon River
STREAM Loon Creek
OBSERVATION CONDITIONS
TIMING Early On Time Late

SURVEY DATE 9/6/89
MAP SCALE 0.85 cm = 1 mile
OBSERVER Davis
REMARKS Helicopter
(Falconberry to Diamond D Ranch)

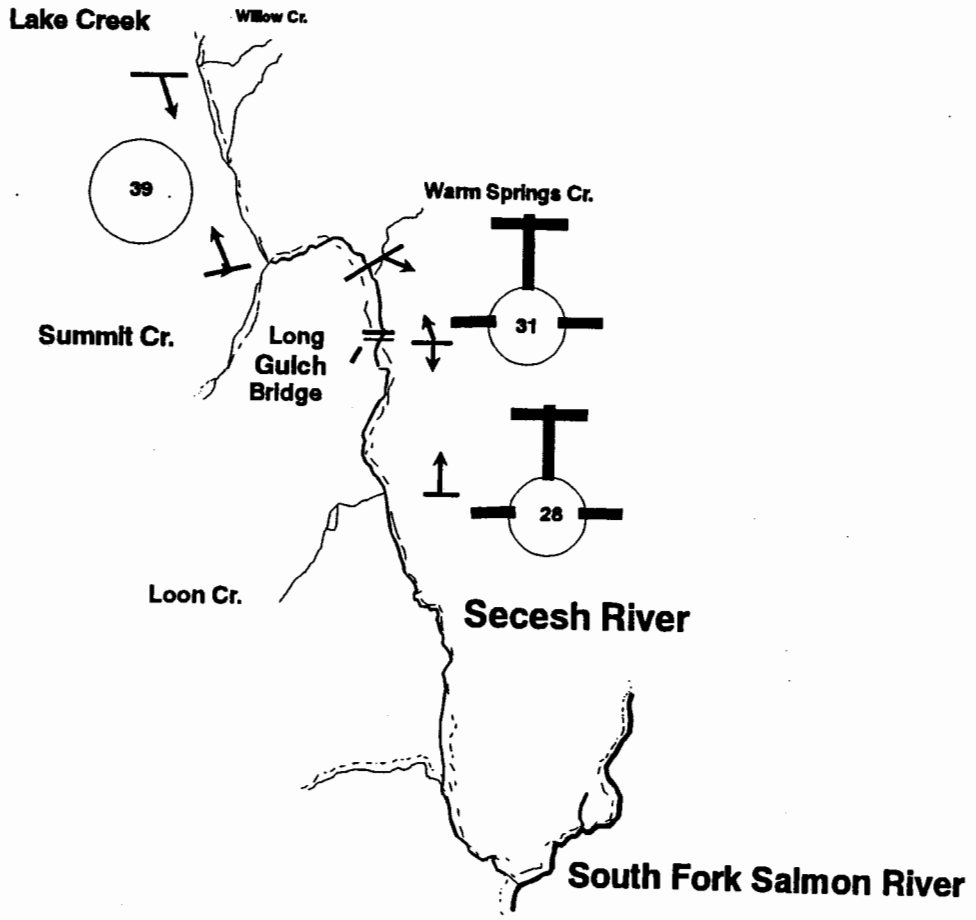


MAP-02

fg3

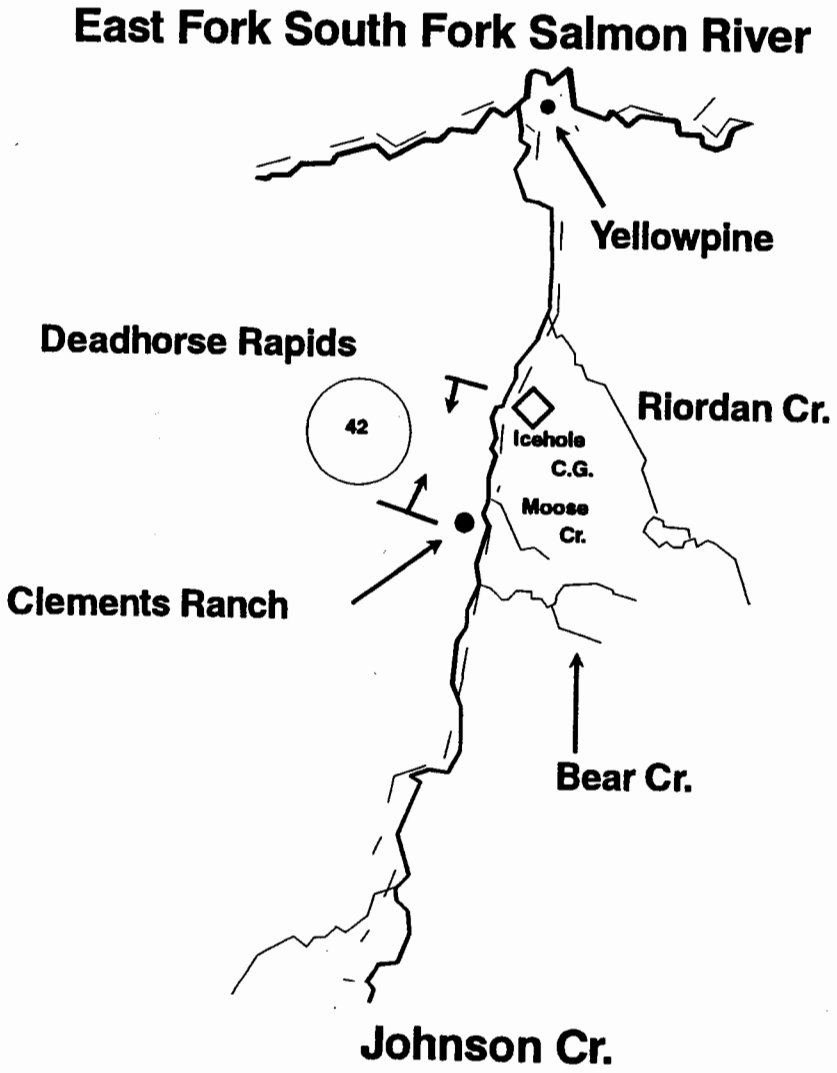
DRAINAGE South Fork Salmon River
STREAM Lake Creek - Secesh River
OBSERVATION CONDITIONS Good
TIMING Early On Time Late

SURVEY DATE 9/9/89
MAP SCALE 0.65 cm = 1 mile
OBSERVER Anderson
REMARKS Ground - Helicopter



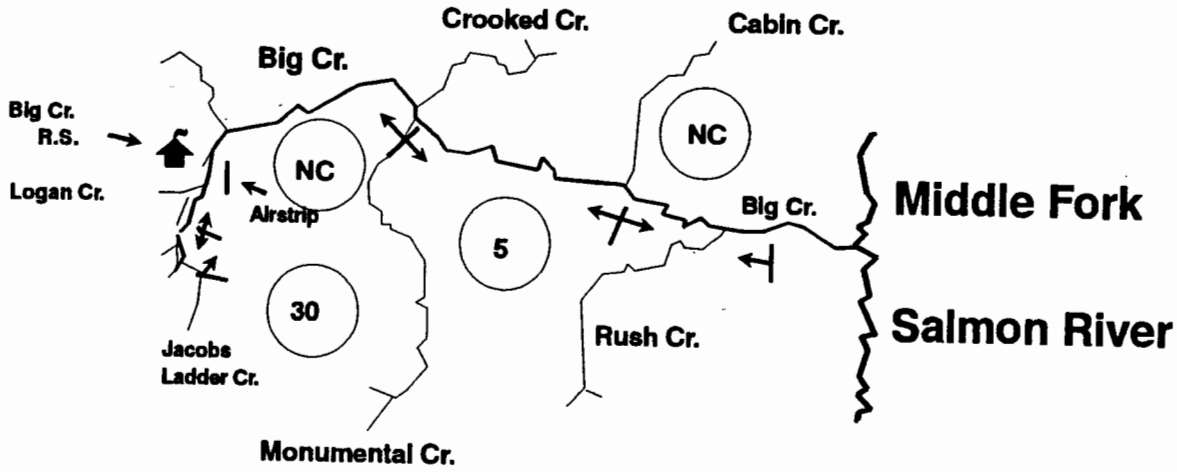
DRAINAGE E.F. of South Fork Salmon
STREAM Johnson Creek
OBSERVATION CONDITIONS Good
TIMING Early On Time Late

SURVEY DATE 9/1/89
MAP SCALE 0.95 cm = 1 mile
OBSERVER Anderson
REMARKS Ground



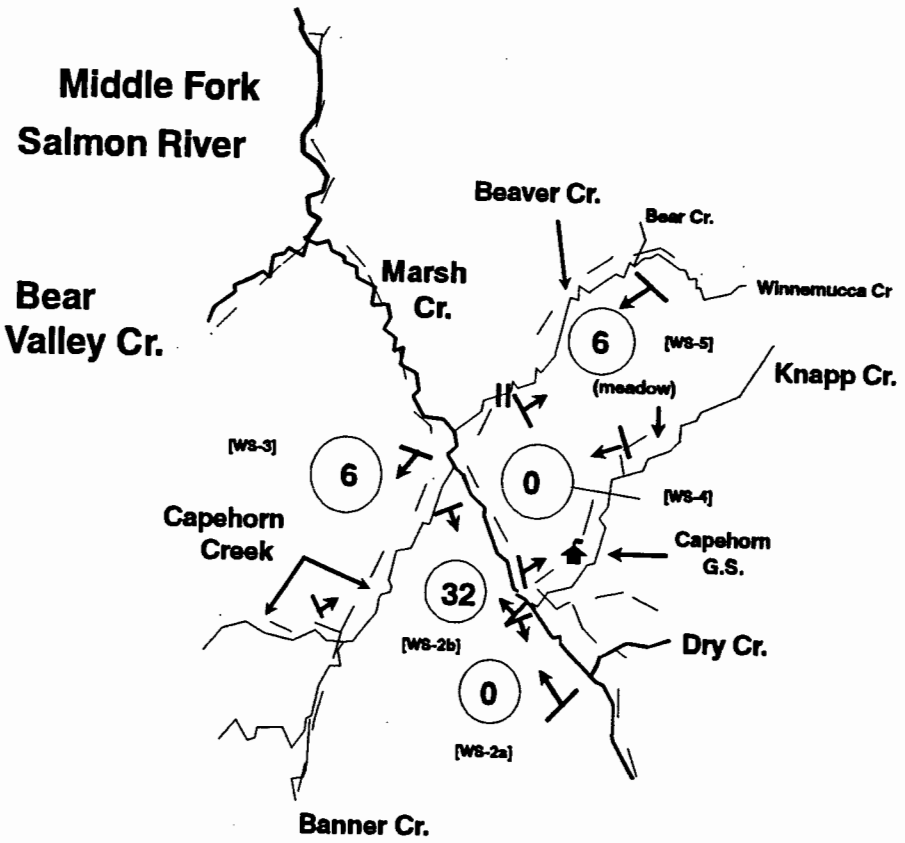
DRAINAGE Middle Fork Salmon River
STREAM Big Creek
OBSERVATION CONDITIONS Good
TIMING Early On Time Late

SURVEY DATE 8/30/89
MAP SCALE 0.45 cm = 1 mile
OBSERVER Anderson
REMARKS Ground



DRAINAGE Middle Fork Salmon River
STREAM Marsh,Beaver,Knapp,and Capehorn Cks.
OBSERVATION CONDITIONS
TIMING Early On Time Late

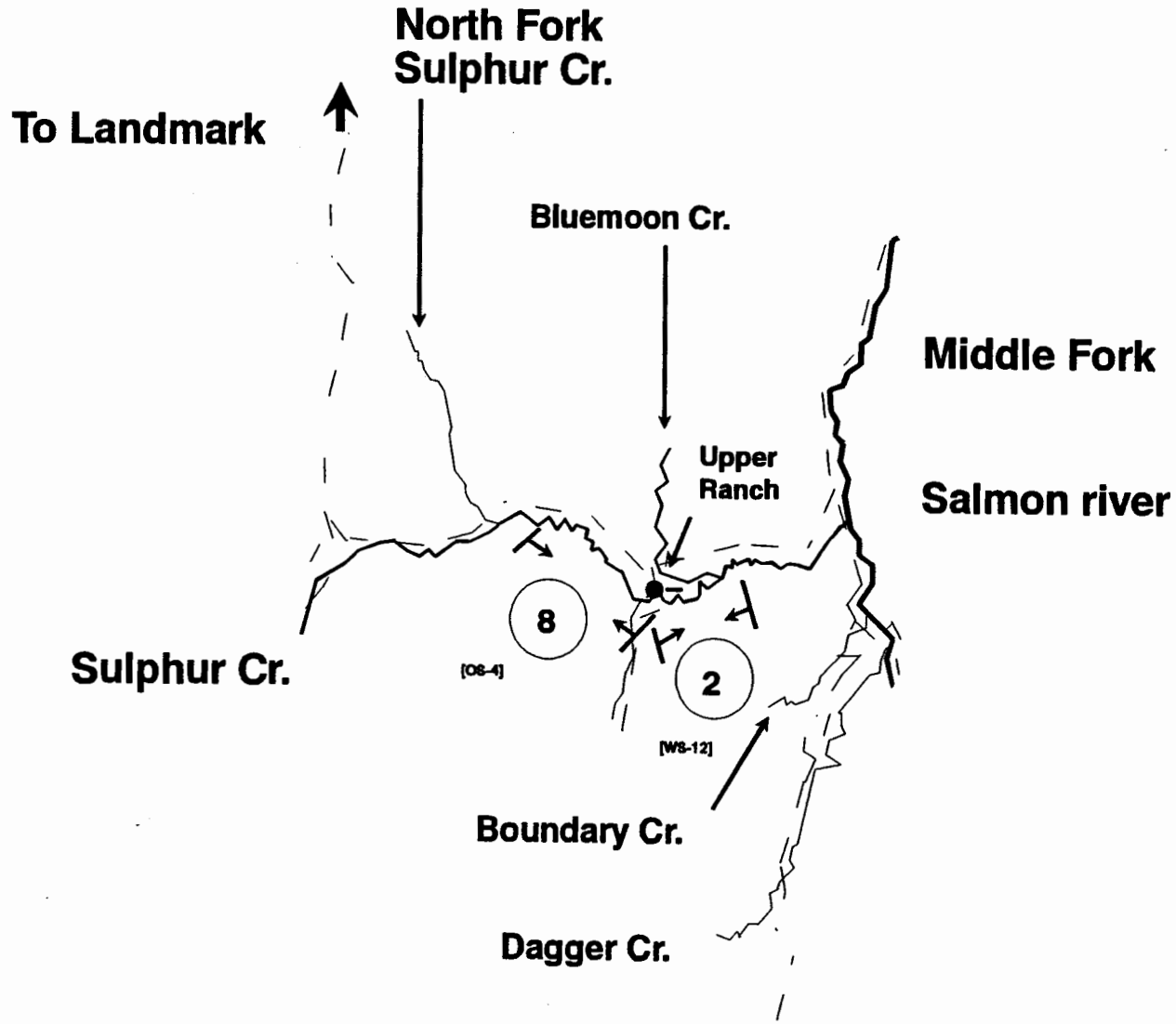
SURVEY DATE 8/14-15/89
MAP SCALE 1.15 cm = 1 mile
OBSERVER IDFG Staff
REMARKS Ground



MAP-06

DRAINAGE M.F. Salmon River
STREAM Sulphur Creek
OBSERVATION CONDITIONS Good
TIMING Early On Time Late

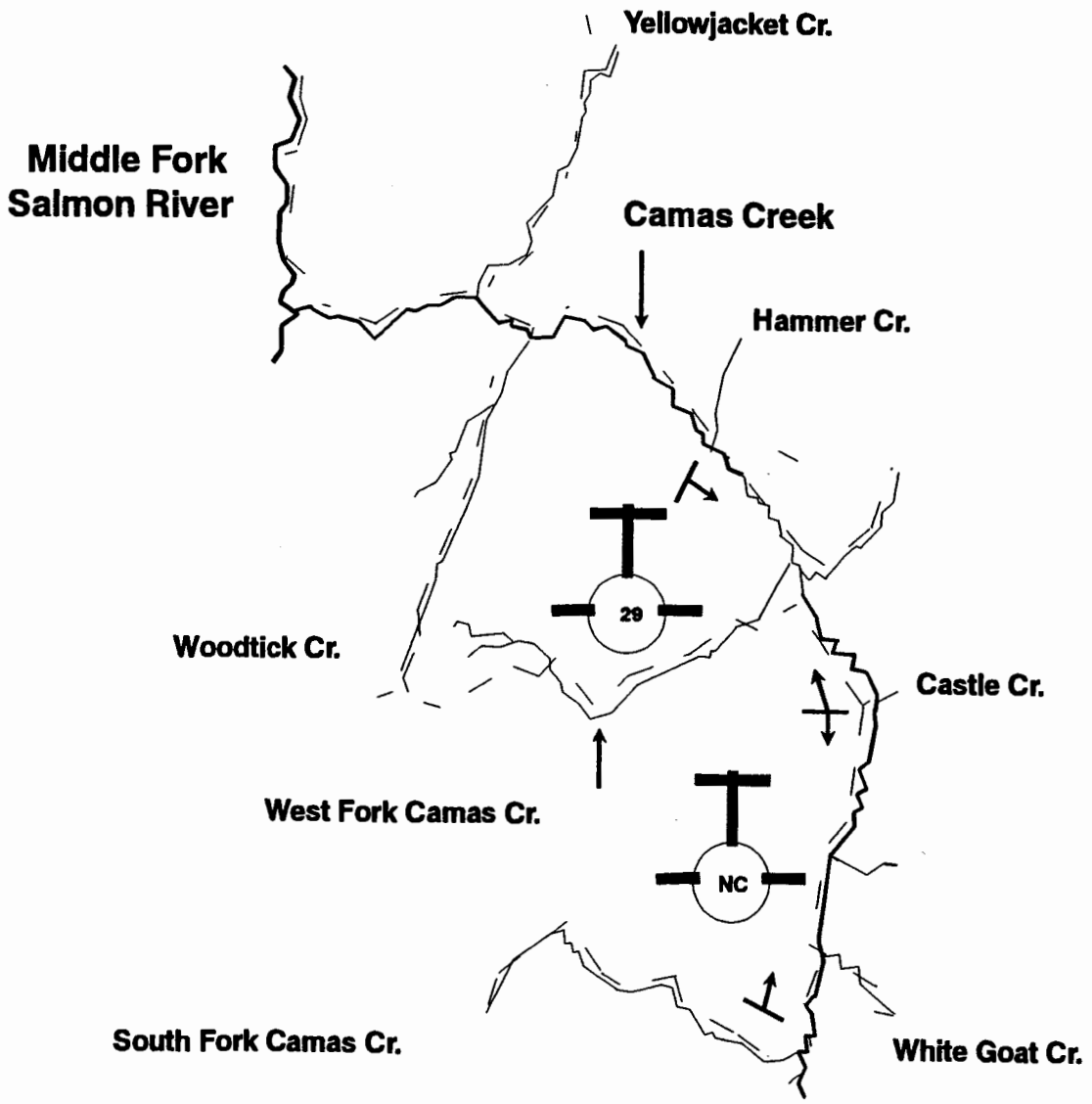
SURVEY DATE 8/20/89
MAP SCALE 1.3 cm = 1 mile
OBSERVER Holubetz, Gebhards
REMARKS Ground



MAP-07

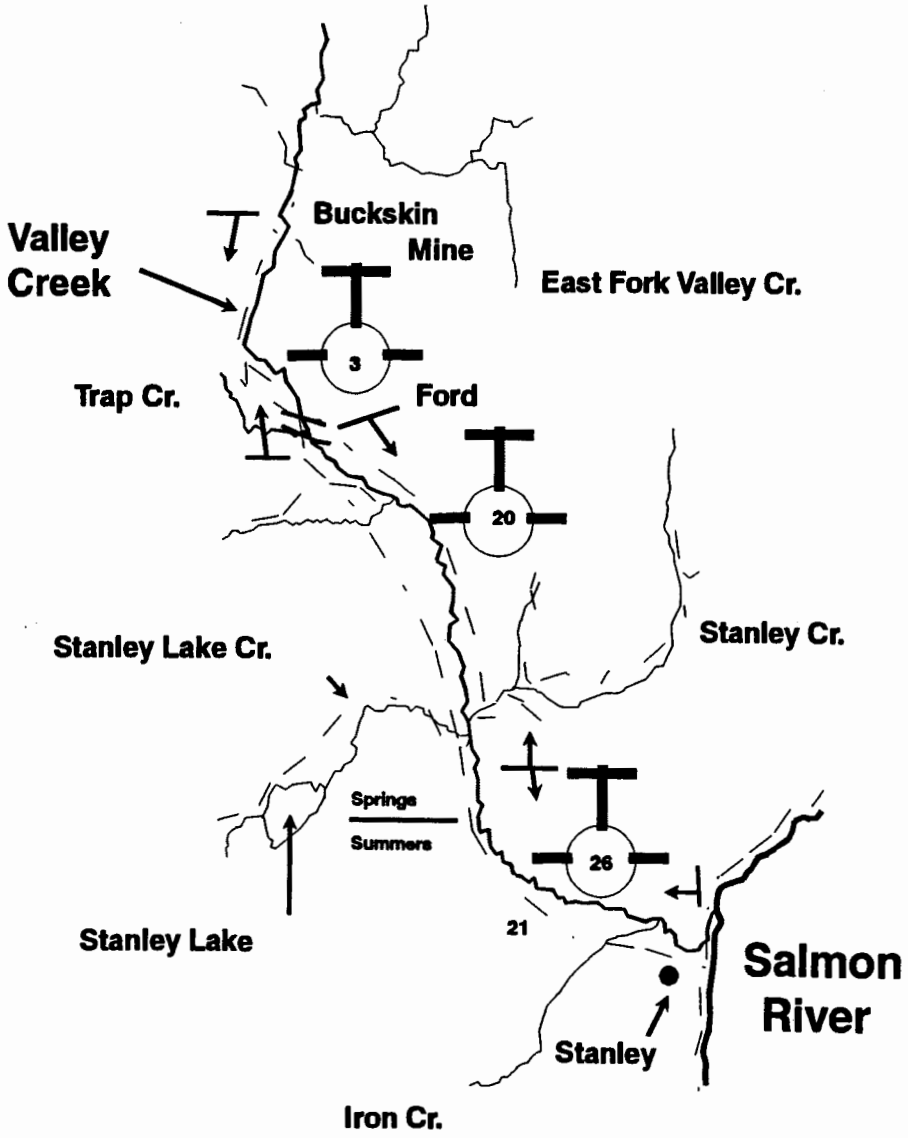
DRAINAGE Middle Fork Salmon River
STREAM Camas Creek
OBSERVATION CONDITIONS
TIMING Early On Time Late

SURVEY DATE 9/6/89
MAP SCALE 1.10 cm = 1 mile
OBSERVER Davis
REMARKS Helicopter



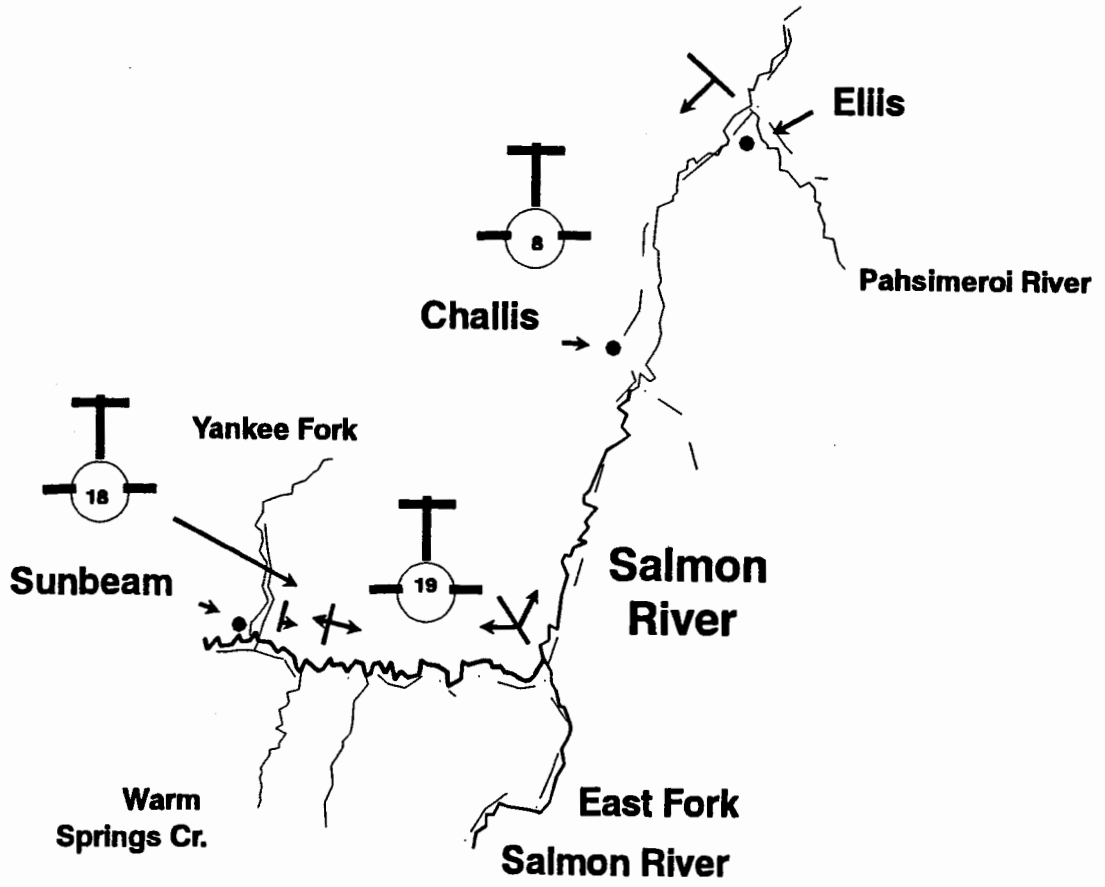
DRAINAGE Salmon River
STREAM Valley Creek
OBSERVATION CONDITIONS Good
TIMING Early On Time Late

SURVEY DATE 9/6/89
MAP SCALE 1.6 cm = 1 mile
OBSERVER Davis
REMARKS Helicopter



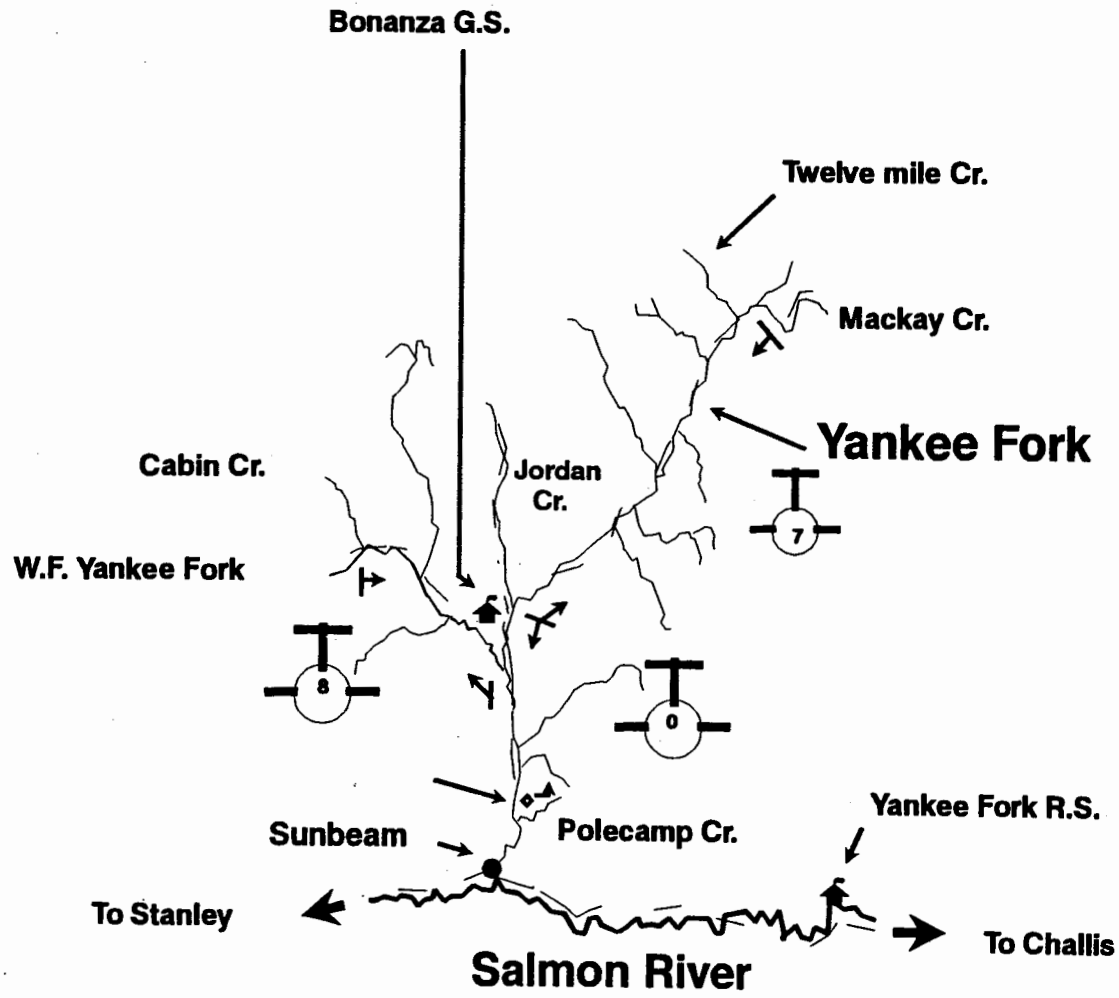
DRAINAGE Salmon River
STREAM Salmon River
OBSERVATION CONDITIONS Good
TIMING Early On Time Late

SURVEY DATE 9/6/89
MAP SCALE 0.35 cm = 1 mile
OBSERVER Davis
REMARKS Helicopter



DRAINAGE Salmon River
STREAM Yankee Fork
OBSERVATION CONDITIONS Good
TIMING Early On Time Late

SURVEY DATE 9/6/89
MAP SCALE 0.70 cm = 1 mile
OBSERVER Davis
REMARKS Helicopter



DRAINAGE Salmon River

STREAM East Fork Salmon River

OBSERVATION CONDITIONS

TIMING Early On Time Late

SURVEY DATE 9/6/89

MAP SCALE 0.6 cm 1 = mile

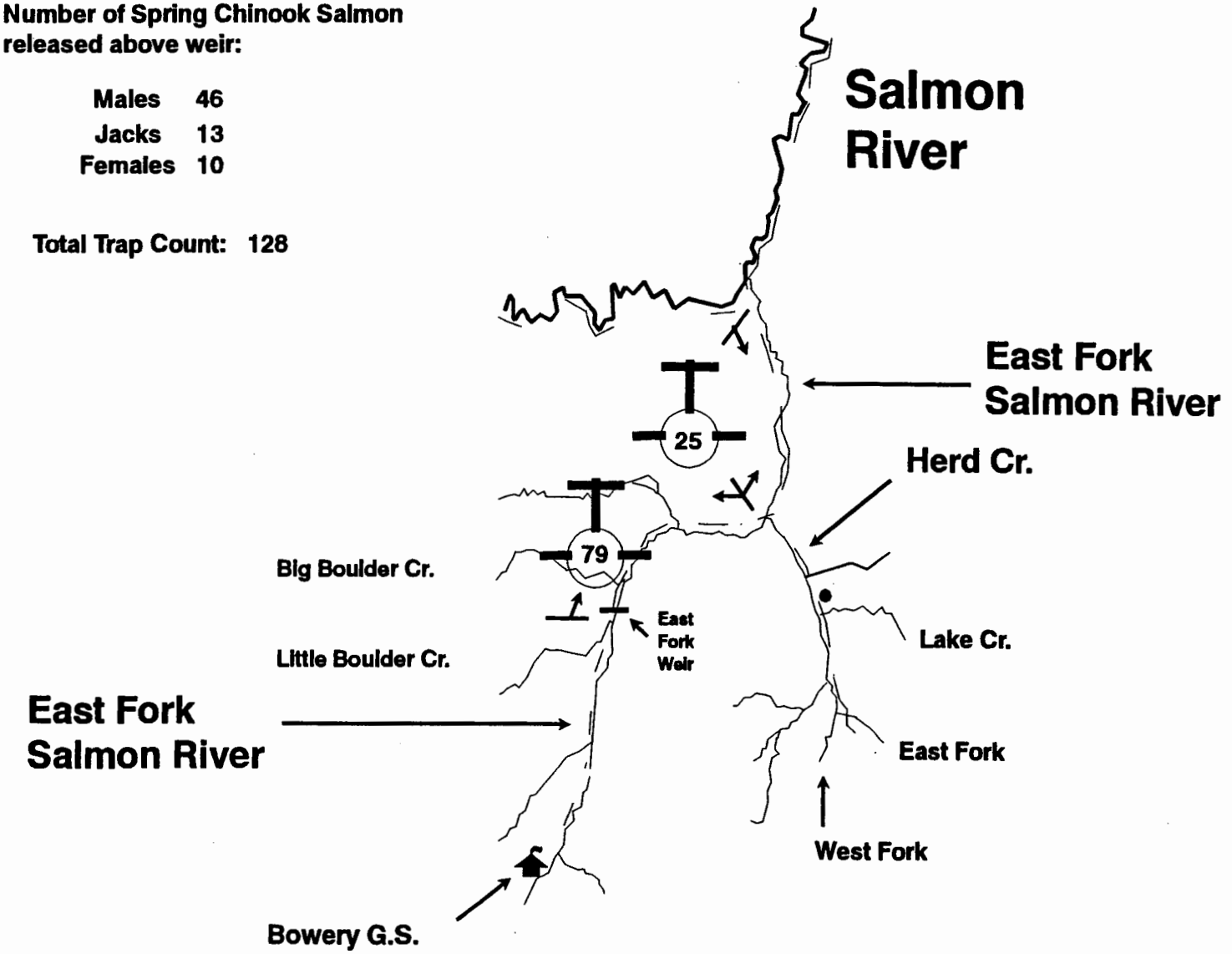
OBSERVER Davis

REMARKS Helicopter

Number of Spring Chinook Salmon released above weir:

Males	46
Jacks	13
Females	10

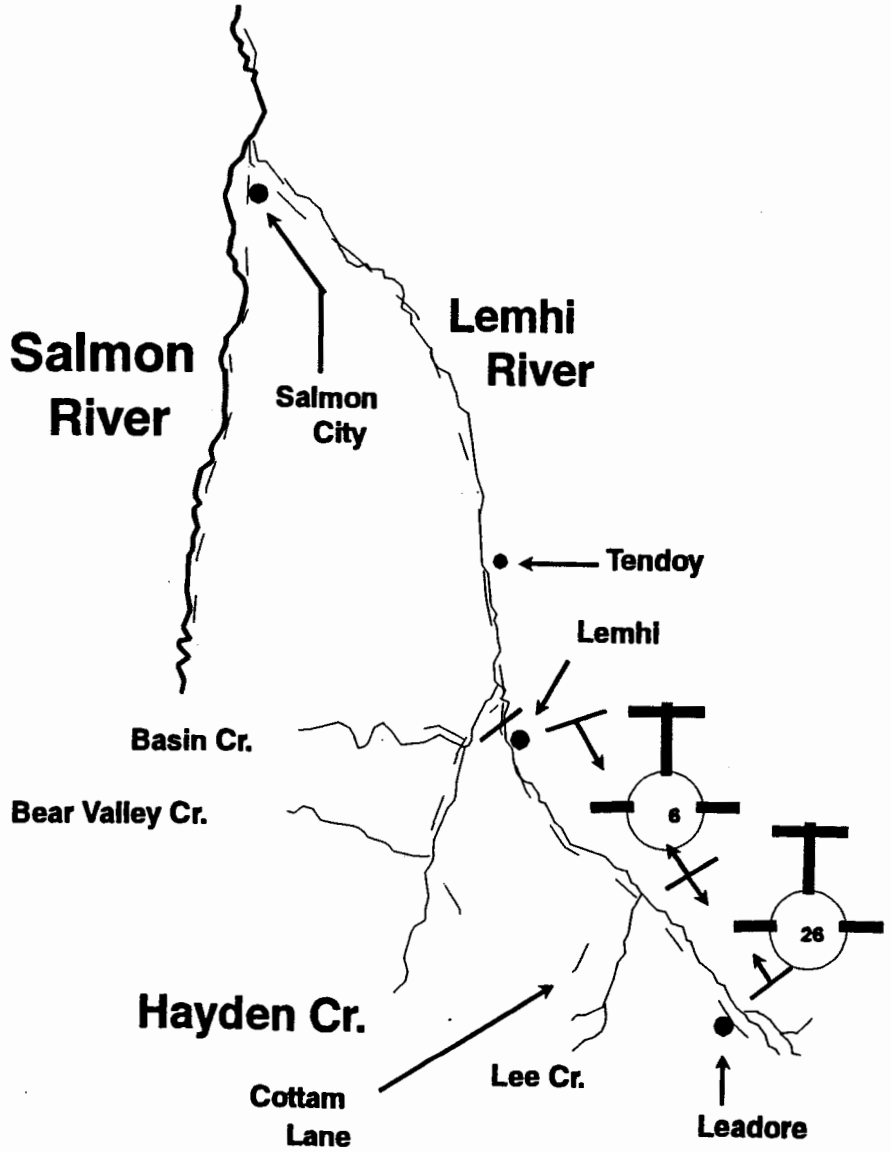
Total Trap Count: 128



MAP-12

DRAINAGE Salmon River
STREAM Lemhi River
OBSERVATION CONDITIONS Good
TIMING Early On Time Late

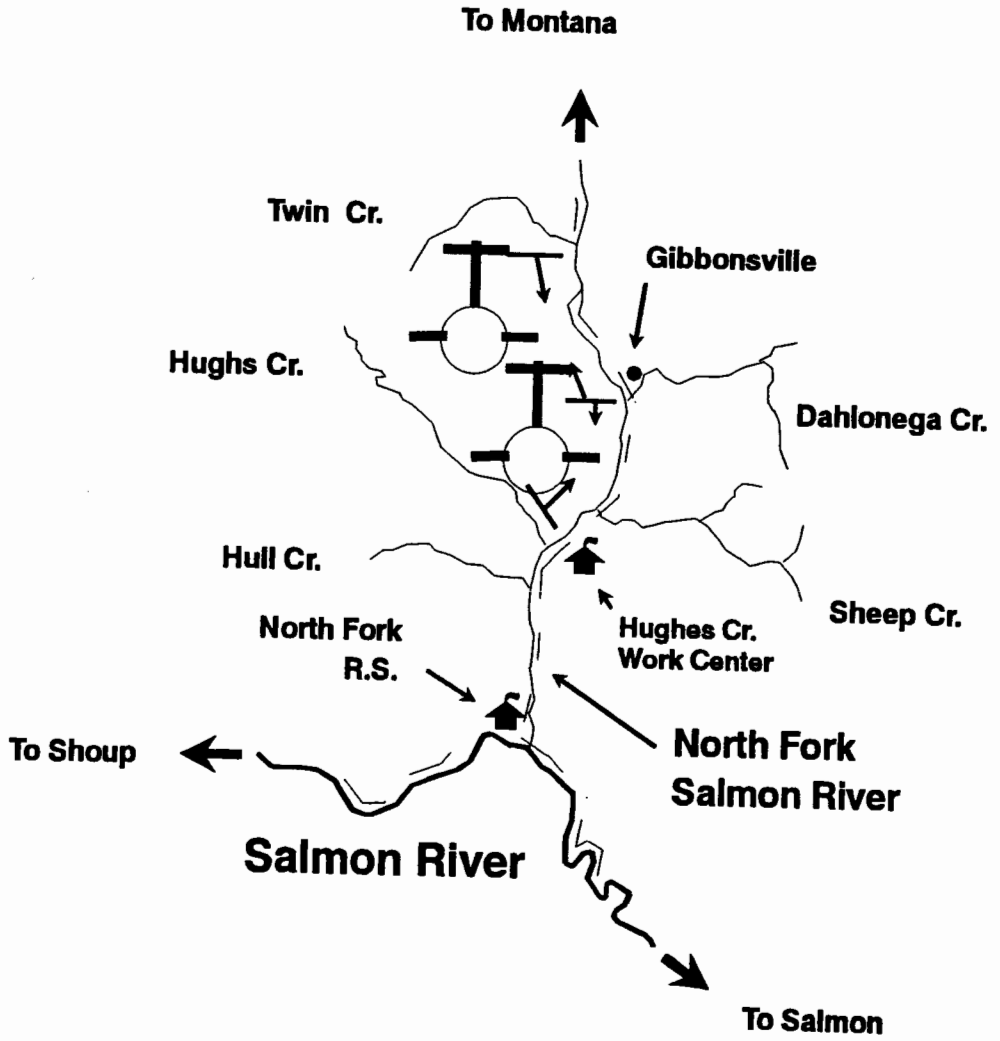
SURVEY DATE 9/6/89
MAP SCALE 0.40 cm = 1 mile
OBSERVER Davis
REMARKS Helicopter



DRAINAGE Salmon River
STREAM North Fork Salmon River
OBSERVATION CONDITIONS
TIMING Early On Time Late

SURVEY DATE
MAP SCALE 0.6 cm = 1 mile
OBSERVER
REMARKS No Count

Dropped from survey 1987.



MAP-14

DRAINAGE Clearwater River

STREAM Crooked River & Newsome Creek

OBSERVATION CONDITIONS Good

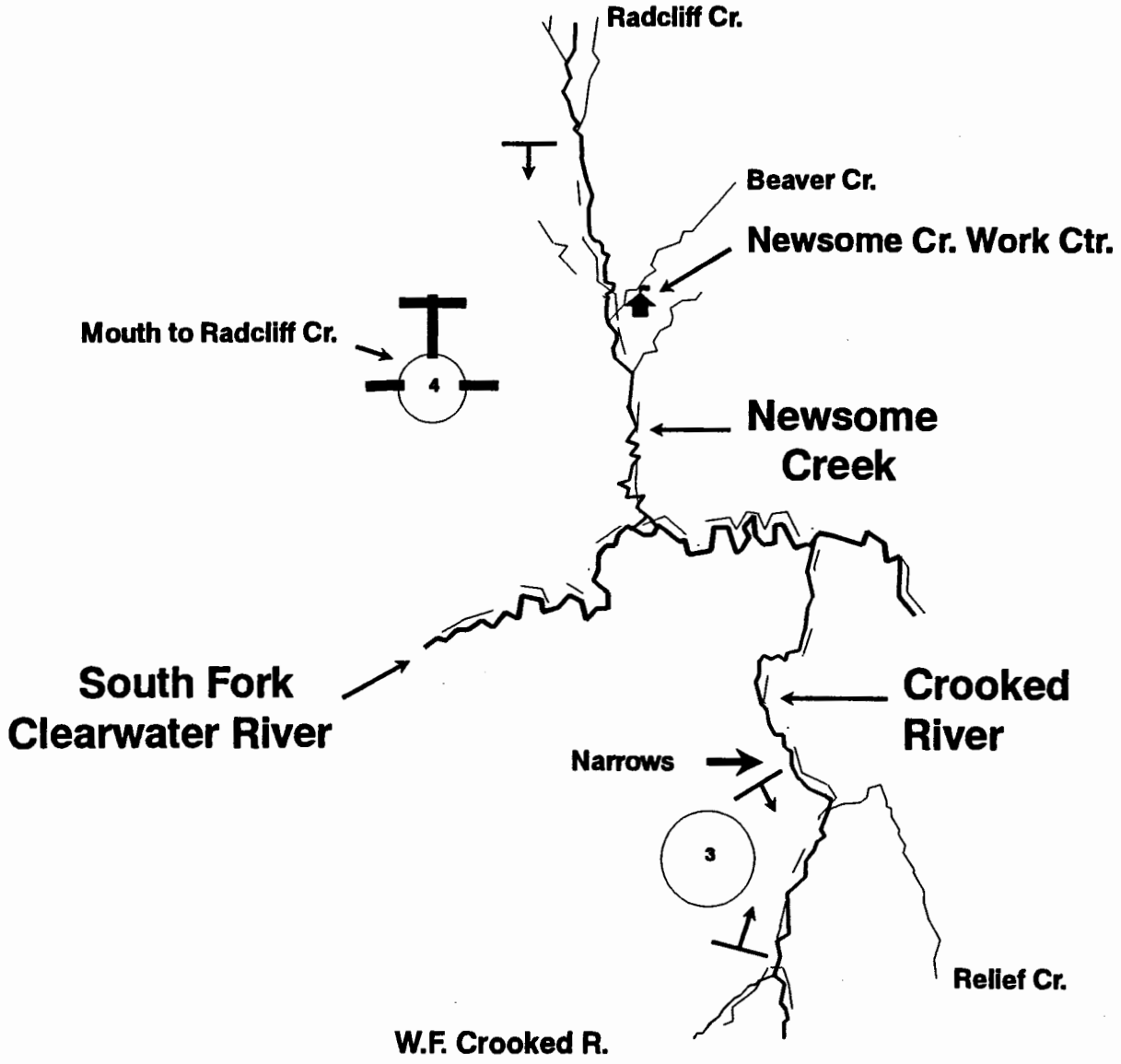
TIMING Early On Time Late

SURVEY DATE 9/6/89

MAP SCALE 0.85 cm = 1 mile

OBSERVER Bowler and Keifer

REMARKS Ground - Helicopter



DRAINAGE Clearwater River

STREAM Red R. and American River

OBSERVATION CONDITIONS Good

TIMING Early On Time Late

SURVEY DATE 9/10/89

MAP SCALE 0.75 cm = 1 mile

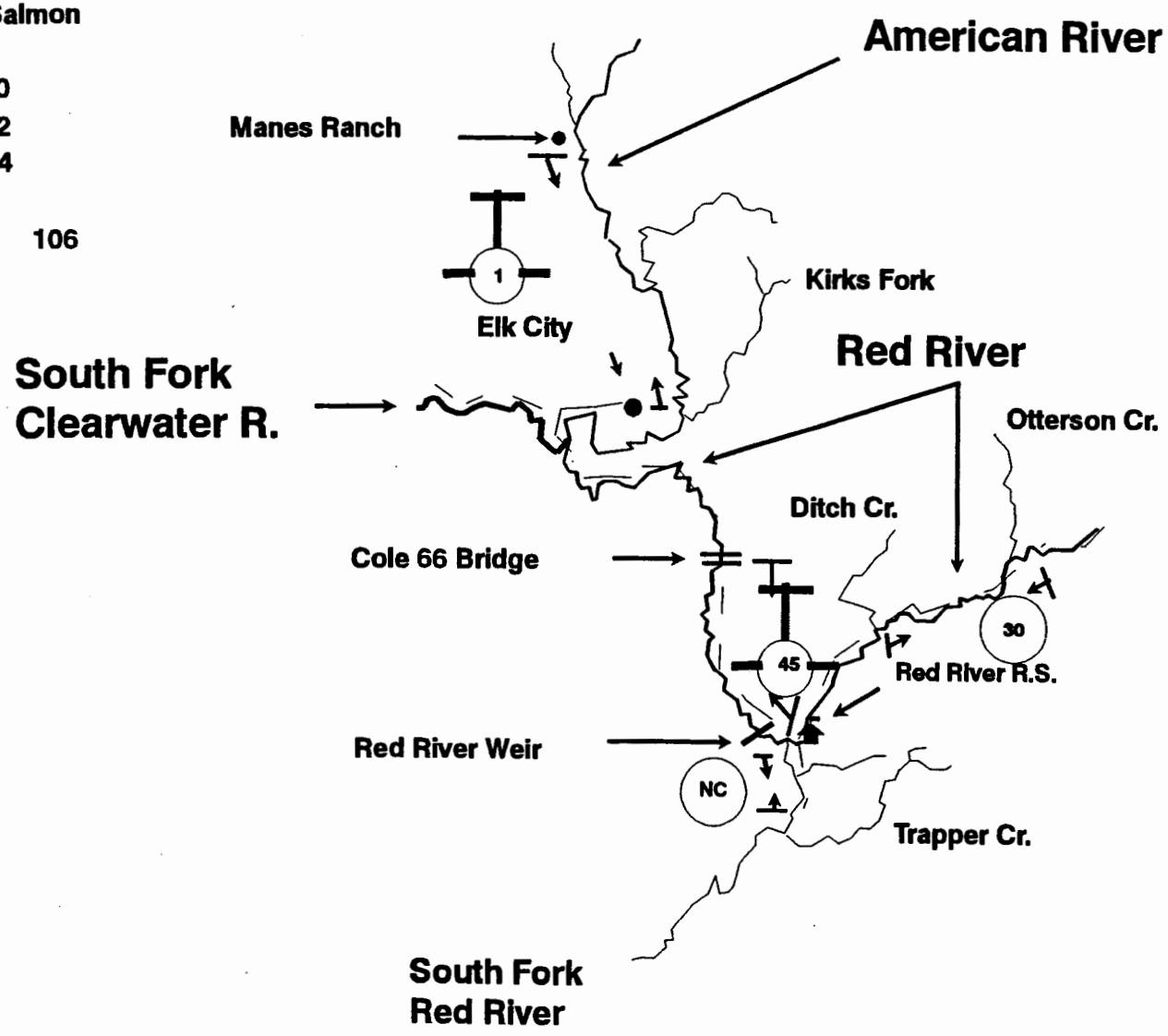
OBSERVER Bowler

REMARKS Helicopter and Ground

Number of Chinnok Salmon released above weir:

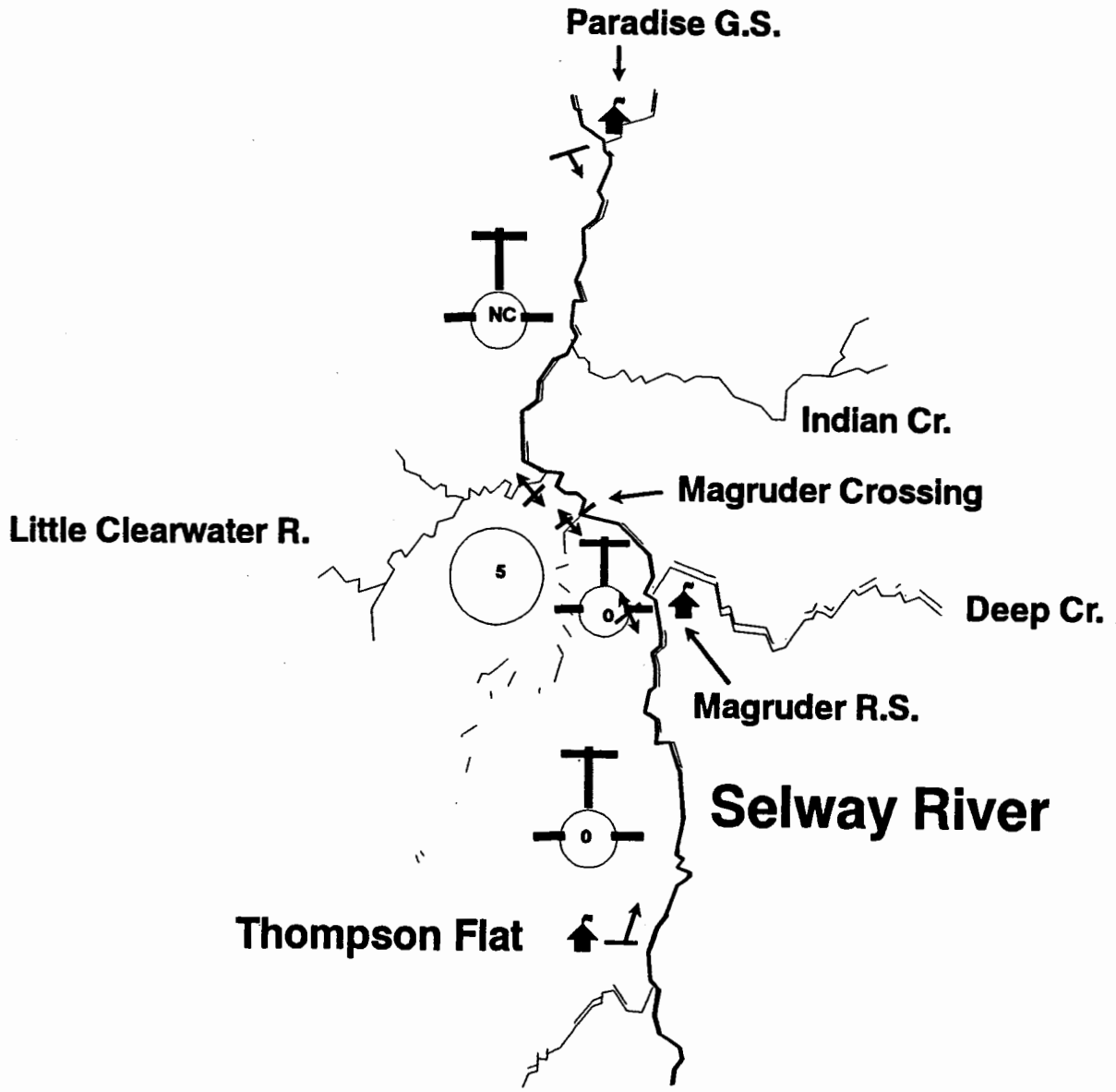
Males	20
Jacks	2
Females	14

Total trap count: 106



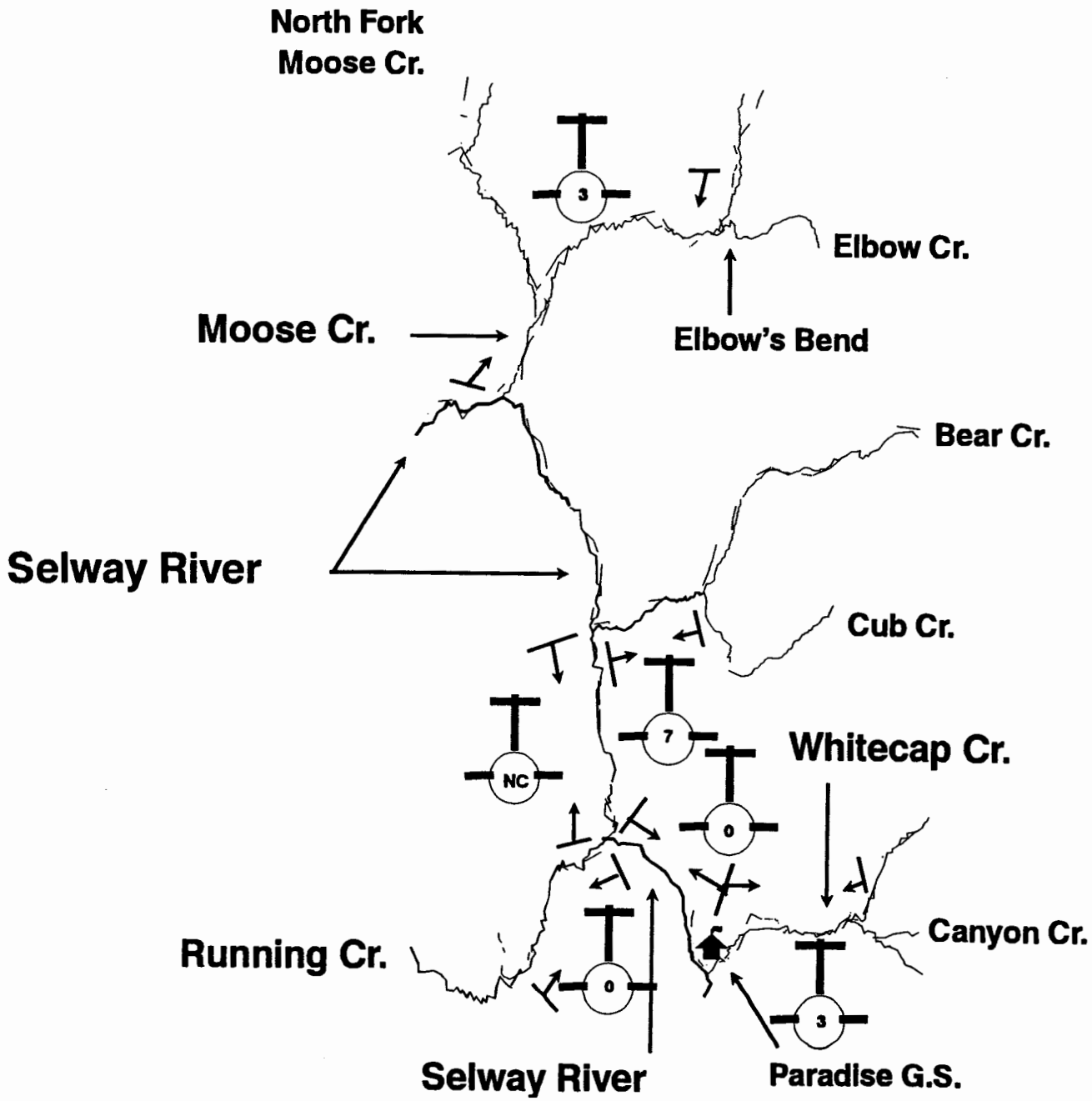
DRAINAGE Clearwater River
STREAM Upper Selway River
OBSERVATION CONDITIONS Good
TIMING Early On Time Late

SURVEY DATE 8/29 - 9/10/89
MAP SCALE 0.85 cm = 1 mile
OBSERVER Bowler
REMARKS Helicopter and Ground



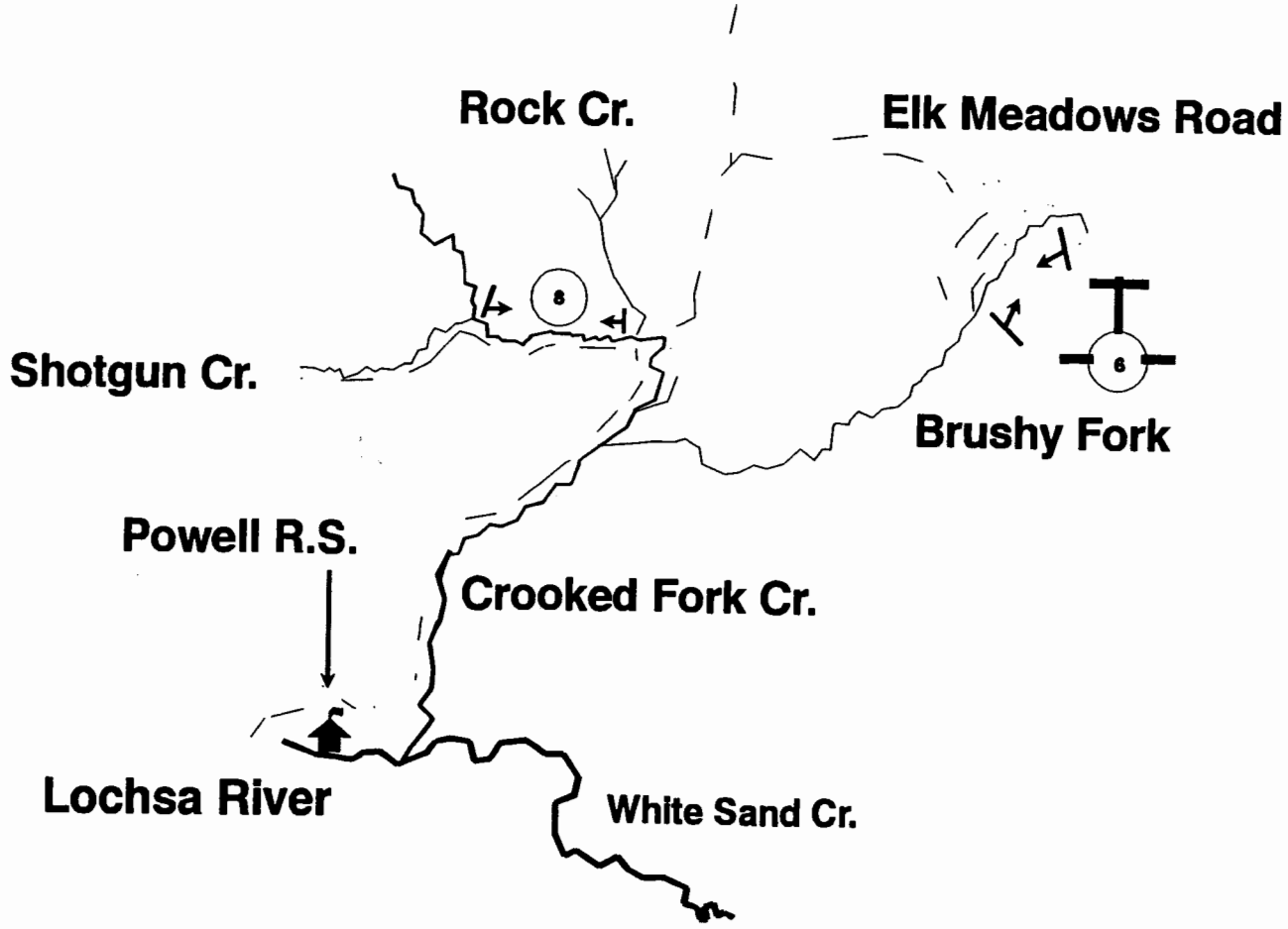
DRAINAGE Clearwater River
STREAM Selway River & tributaries
OBSERVATION CONDITIONS Good
TIMING Early On Time Late

SURVEY DATE 9/10/89
MAP SCALE 0.65 cm = 1 mile
OBSERVER Bowler
REMARKS Helicopter



DRAINAGE Clearwater River
STREAM Crooked Fork & Brushy Fork
OBSERVATION CONDITIONS Good
TIMING Early On Time Late

SURVEY DATE 8/28/89, 9/2/89
MAP SCALE 0.95 cm = 1 mile
OBSERVER Bowler
REMARKS Helicopter and Ground



DRAINAGE Middle Fork Salmon River

STREAM Bear Valley Creek

OBSERVATION CONDITIONS Good

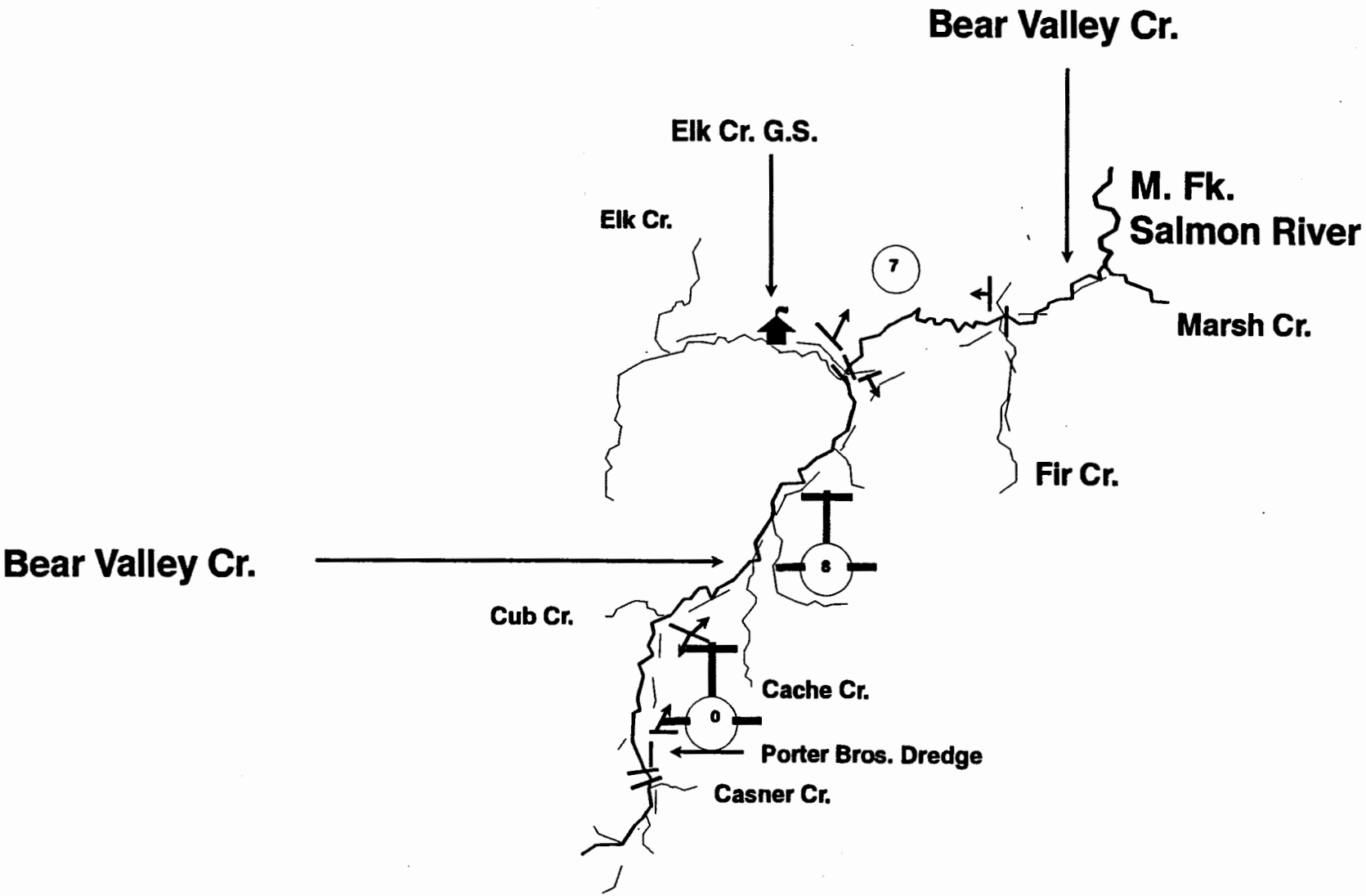
TIMING Early On Time Late

SURVEY DATE 8/25/89

MAP SCALE 0.90 cm = 1 mile

OBSERVER Holubetz and Gebhards

REMARKS Helicopter and Ground



DRAINAGE Salmon River

STREAM South Fork Salmon River

OBSERVATION CONDITIONS Good

TIMING Early On Time Late

SURVEY DATE 9/9/89

MAP SCALE 0.40 cm = 1 mile

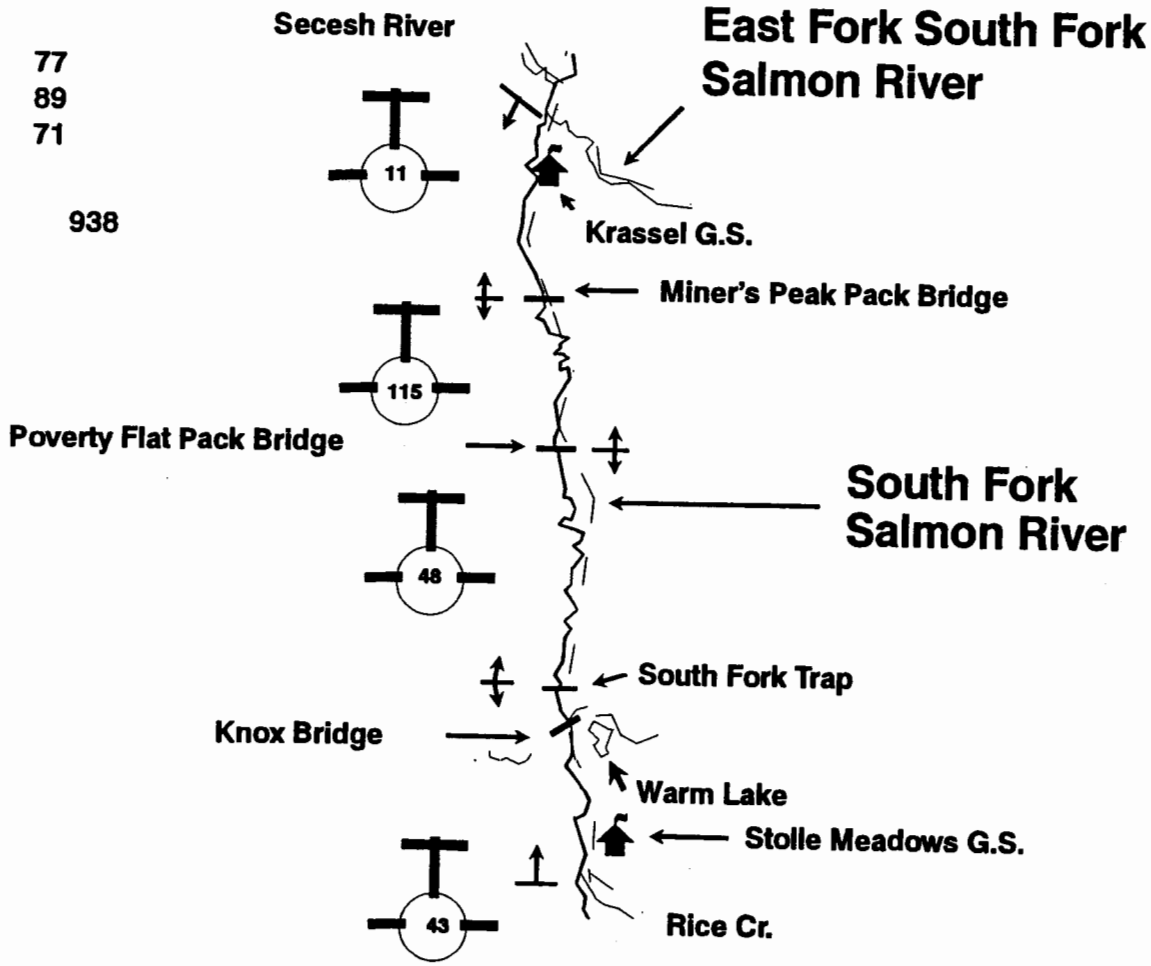
OBSERVER Anderson

REMARKS Helicopter

Number of Chinook Salmon released above South Fork Salmon Trap:

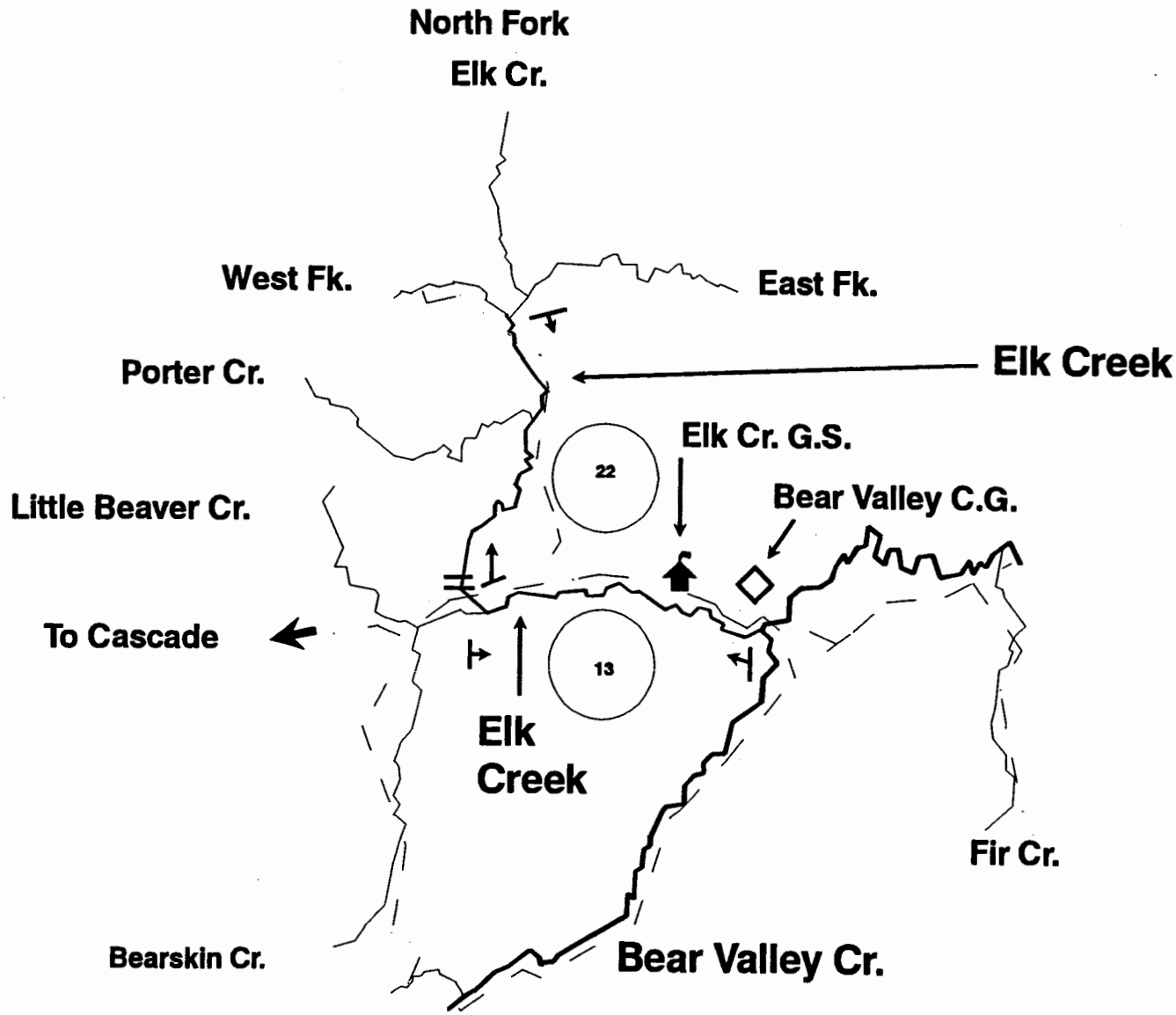
Males	77
Jacks	89
Females	71

Total trap count: 938



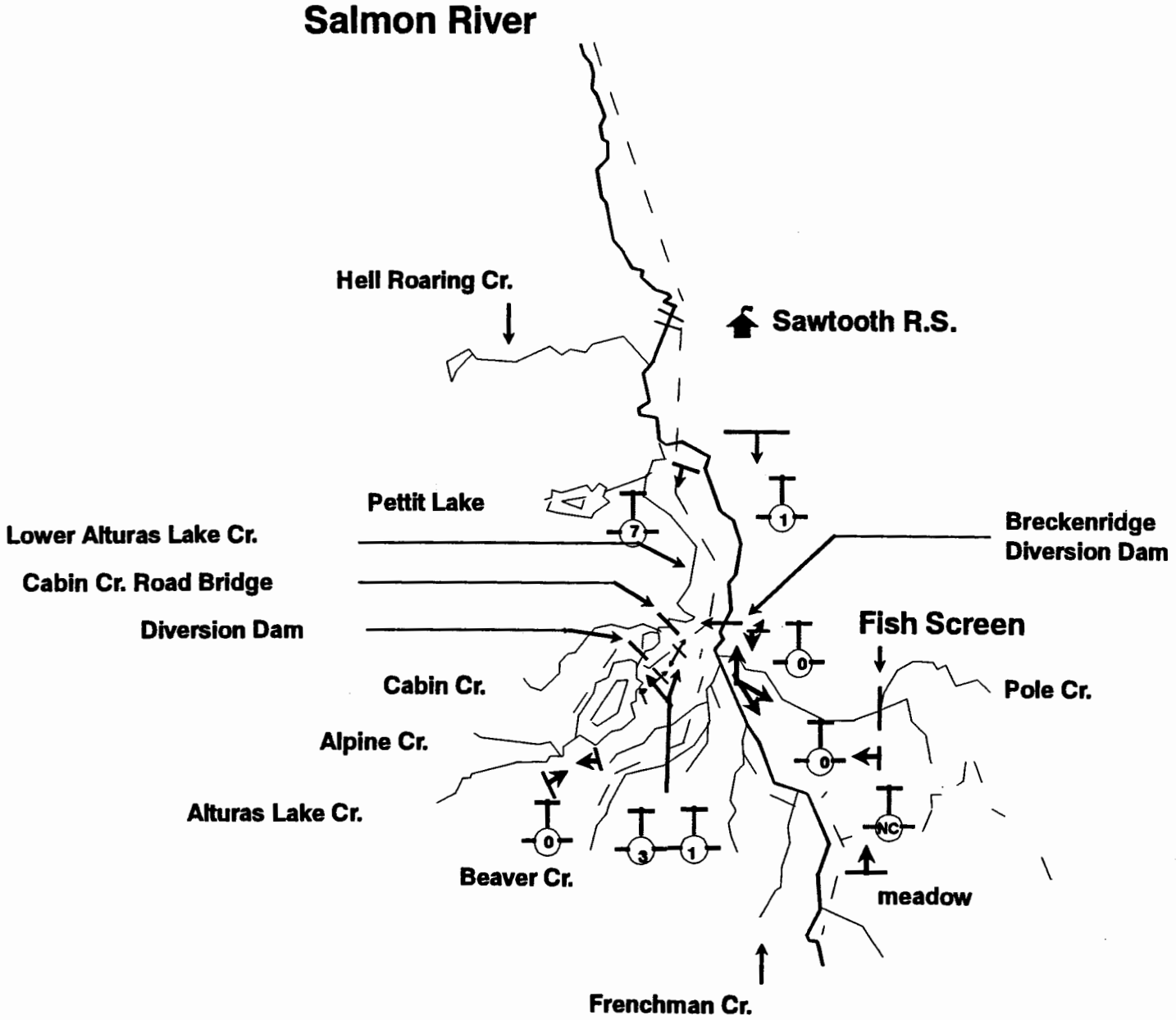
DRAINAGE M.F. Salmon River
STREAM Elk Creek
OBSERVATION CONDITIONS Excellent
TIMING Early On Time Late

SURVEY DATE 8/24/89
MAP SCALE 1.3 cm = 1 mile
OBSERVER Mabbott and Muck
REMARKS Ground



DRAINAGE Salmon River
STREAM Salmon R. & Tributaries
OBSERVATION CONDITIONS Good
TIMING Early On Time Late

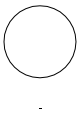
SURVEY DATE 9/6/89
MAP SCALE 0.78 cm = 1 mile
OBSERVER Davis
REMARKS Helicopter



Appendix E. Maps showing 1990 chinook salmon redd count transects and numbers of redds counted.

LEGEND

Transect Boundaries 

Ground Redd Counts 

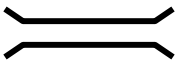
Helicopter Redd Counts 

Road

Trail

Forest Service Station 

Campground 

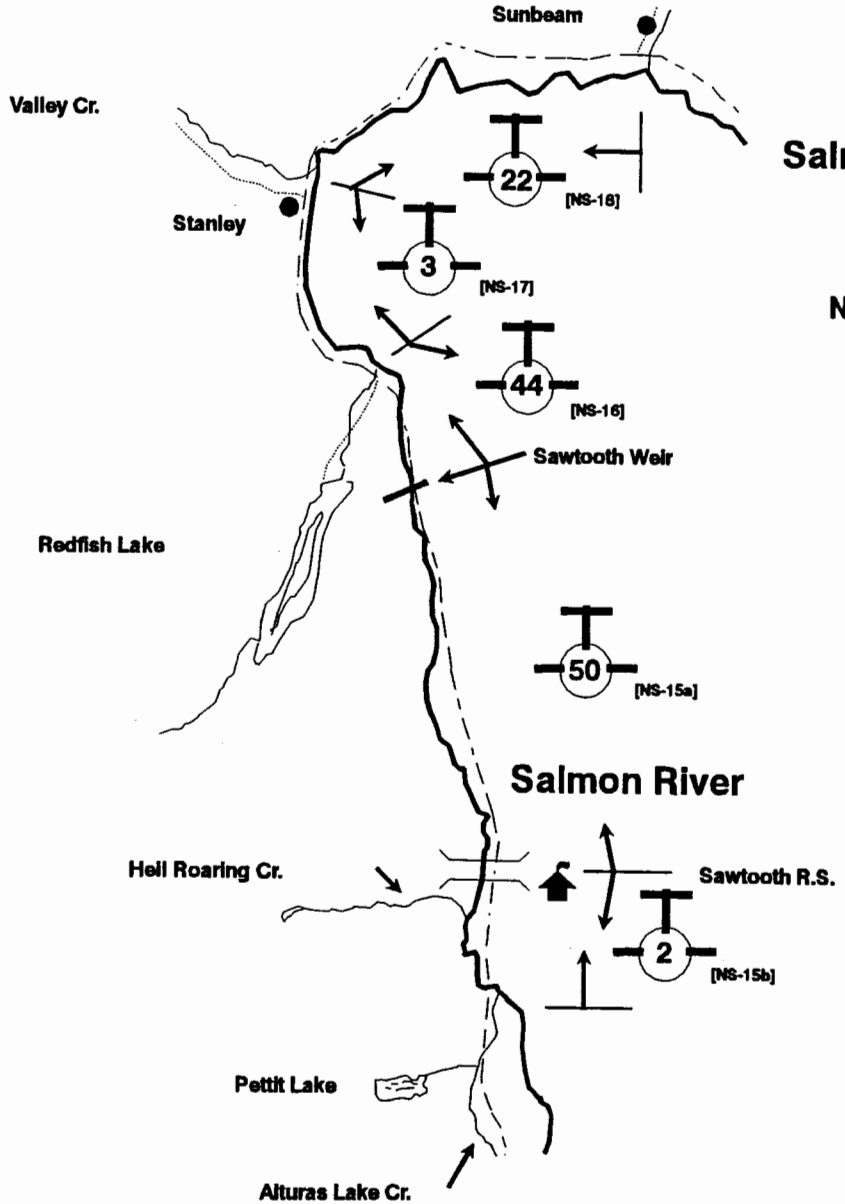
Road or Highway Bridge 

Pack Bridge 

Transect Codes (See Appendix B) [WS-##], [NS-##], [WC-##], etc.

DRAINAGE Salmon River
STREAM Salmon River
OBSERVATION CONDITIONS Good
TIMING Early On Time Late

SURVEY DATE 9/07/90
MAP SCALE 0.78 cm = 1 mile
OBSERVER Lukens
REMARKS Helicopter



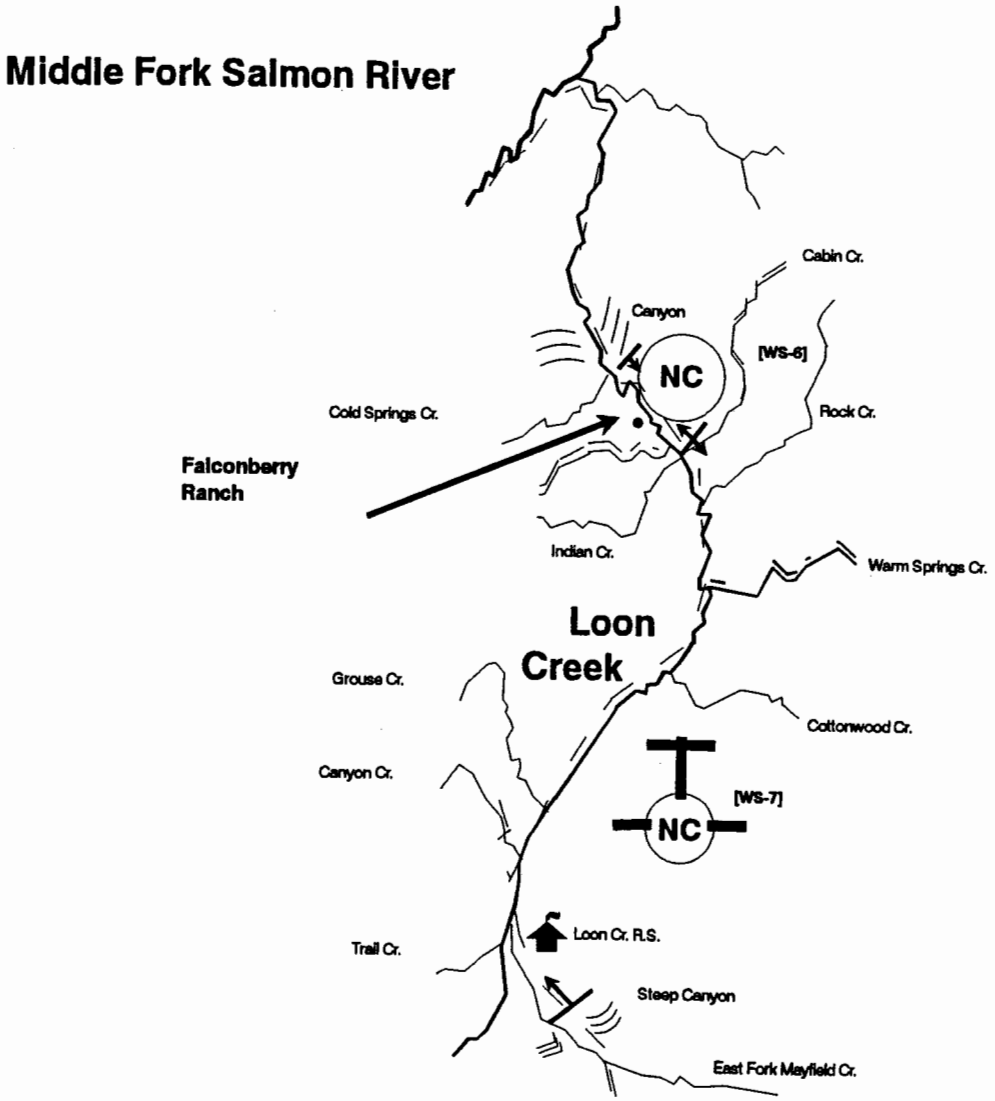
Number of Spring Chinook released above Sawtooth weir:

Males	390
Jacks	58
Females	167
Total trap count:	1,488

MAP-01

DRAINAGE Middle Fork Salmon River
STREAM Loon Creek
OBSERVATION CONDITIONS Poor
TIMING Early On Time Late

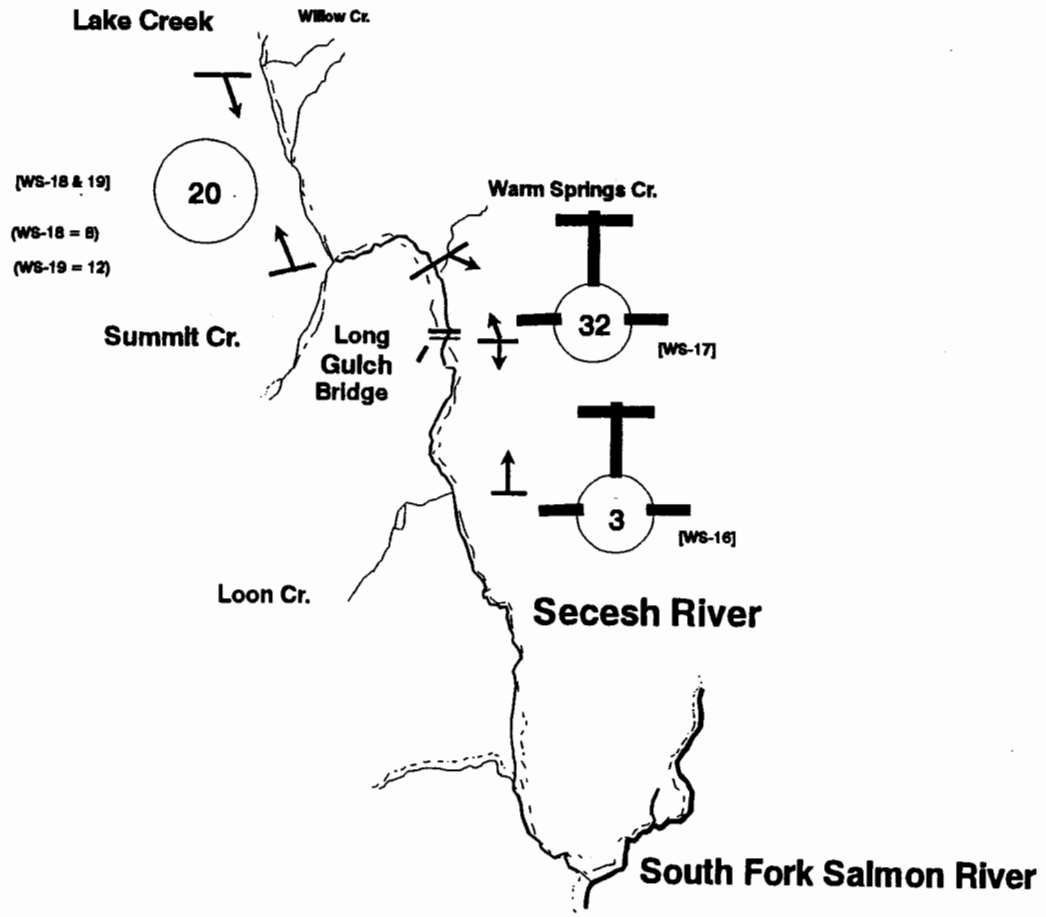
SURVEY DATE 9/08/90
MAP SCALE 0.85 cm = 1 mile
OBSERVER Lukens
REMARKS Helicopter
Turbid, no counts



MAP-02

DRAINAGE South Fork Salmon River
STREAM Lake Creek - Secesh River
OBSERVATION CONDITIONS Secesh=Good
TIMING Early On Time Late

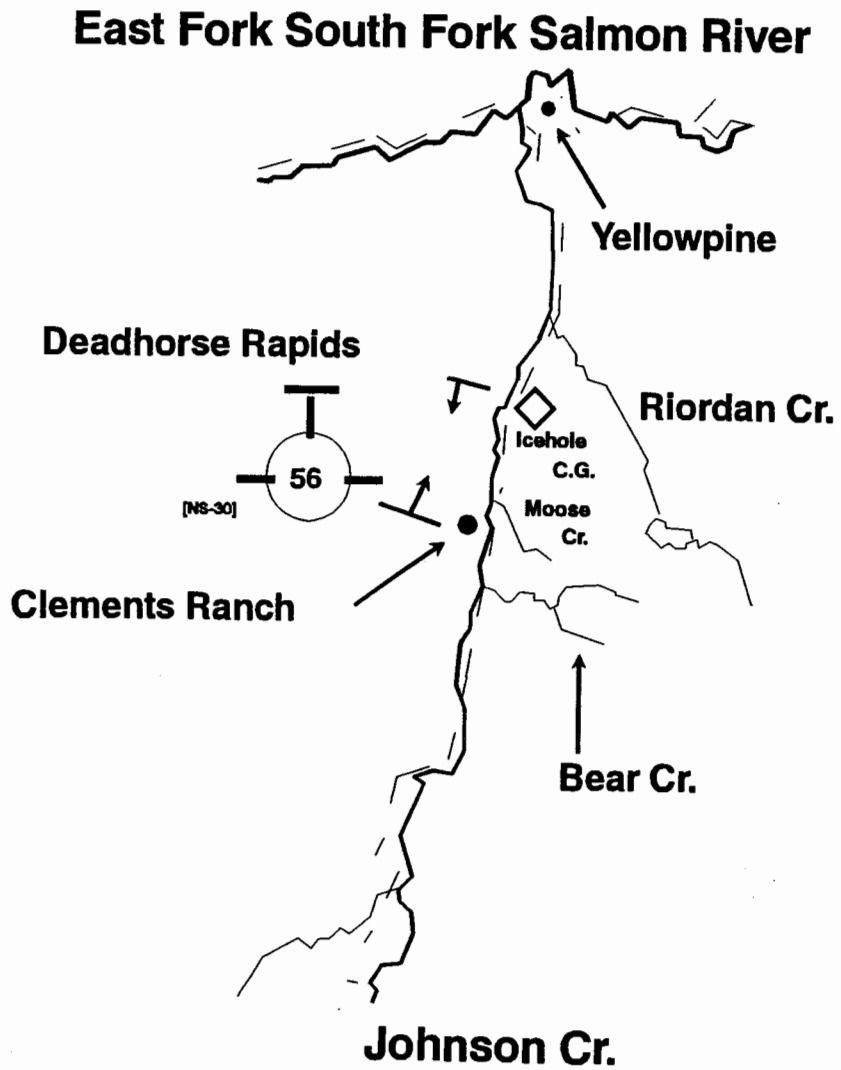
SURVEY DATE 8/27&31/90
MAP SCALE 0.65 cm = 1 mile
OBSERVER Anderson
REMARKS Ground - Helicopter
Lake Cr.: raining



MAP-03

DRAINAGE E.F. of South Fork Salmon
STREAM Johnson Creek
OBSERVATION CONDITIONS Good
TIMING Early On Time Late

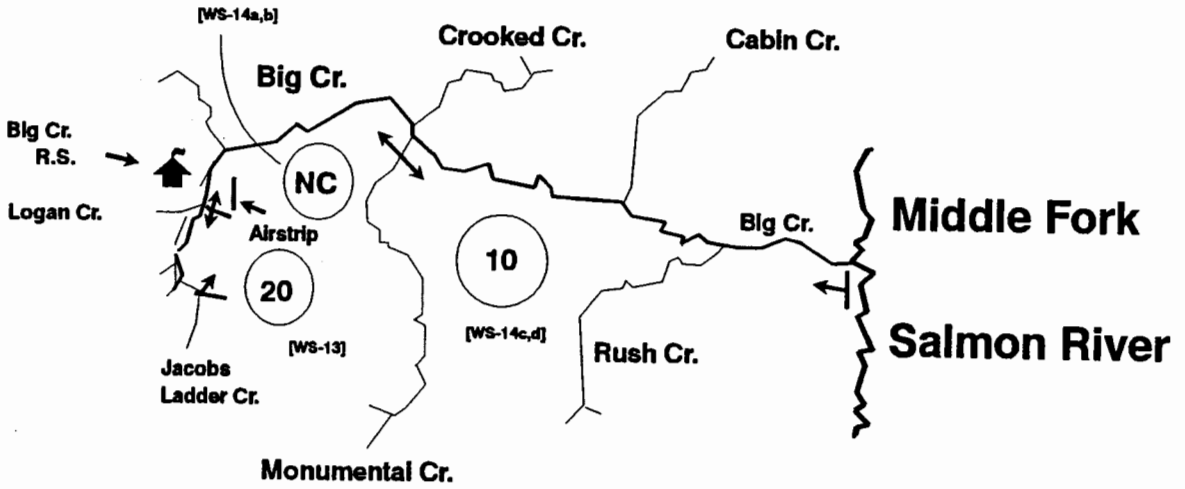
SURVEY DATE 8/31/90
MAP SCALE 0.95 cm = 1 mile
OBSERVER Anderson
REMARKS Helicopter



MAP-04

DRAINAGE Middle Fork Salmon River
STREAM Big Creek
OBSERVATION CONDITIONS
TIMING Early On Time Late

SURVEY DATE (see remarks)
MAP SCALE 0.45 cm = 1 mile
OBSERVER Anderson, Lukens
REMARKS Poor Visibility: Cabin Creek to mouth.
WS-13: 8/29/90; WS-14:9/08/90



MAP-05

DRAINAGE Middle Fork Salmon River

STREAM Marsh,Beaver,Knapp,and Capehorn Cks.

OBSERVATION CONDITIONS Good

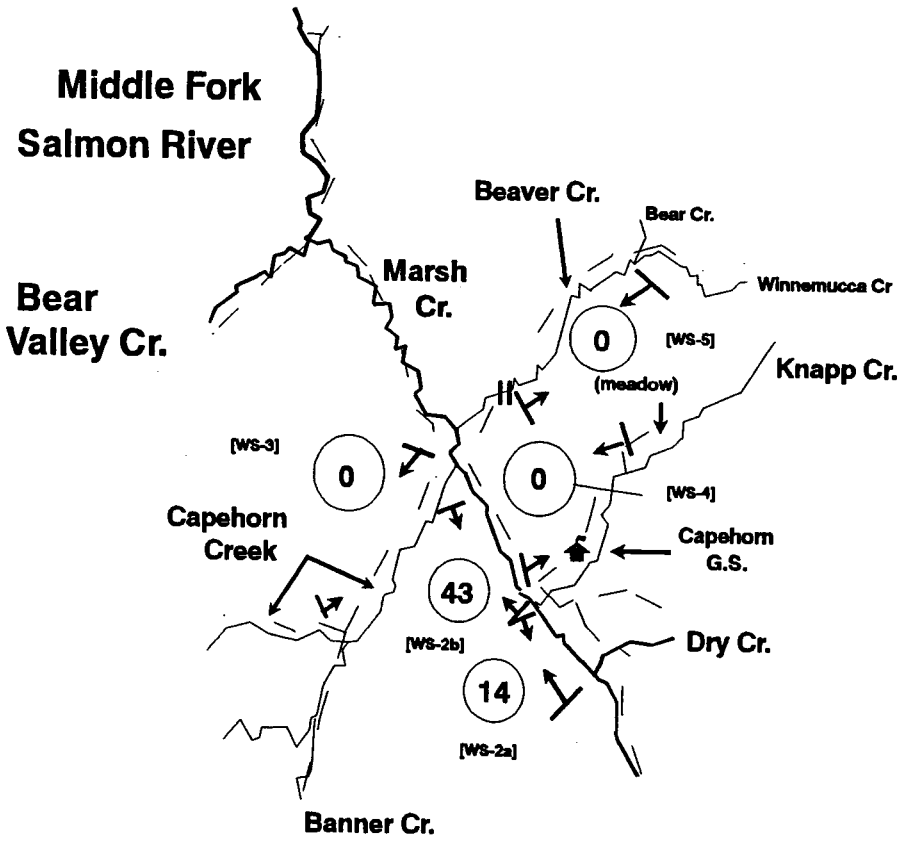
TIMING Early On Time Late

SURVEY DATE 8/15-16/90

MAP SCALE 1.15 cm = 1 mile

OBSERVER IDFG staff

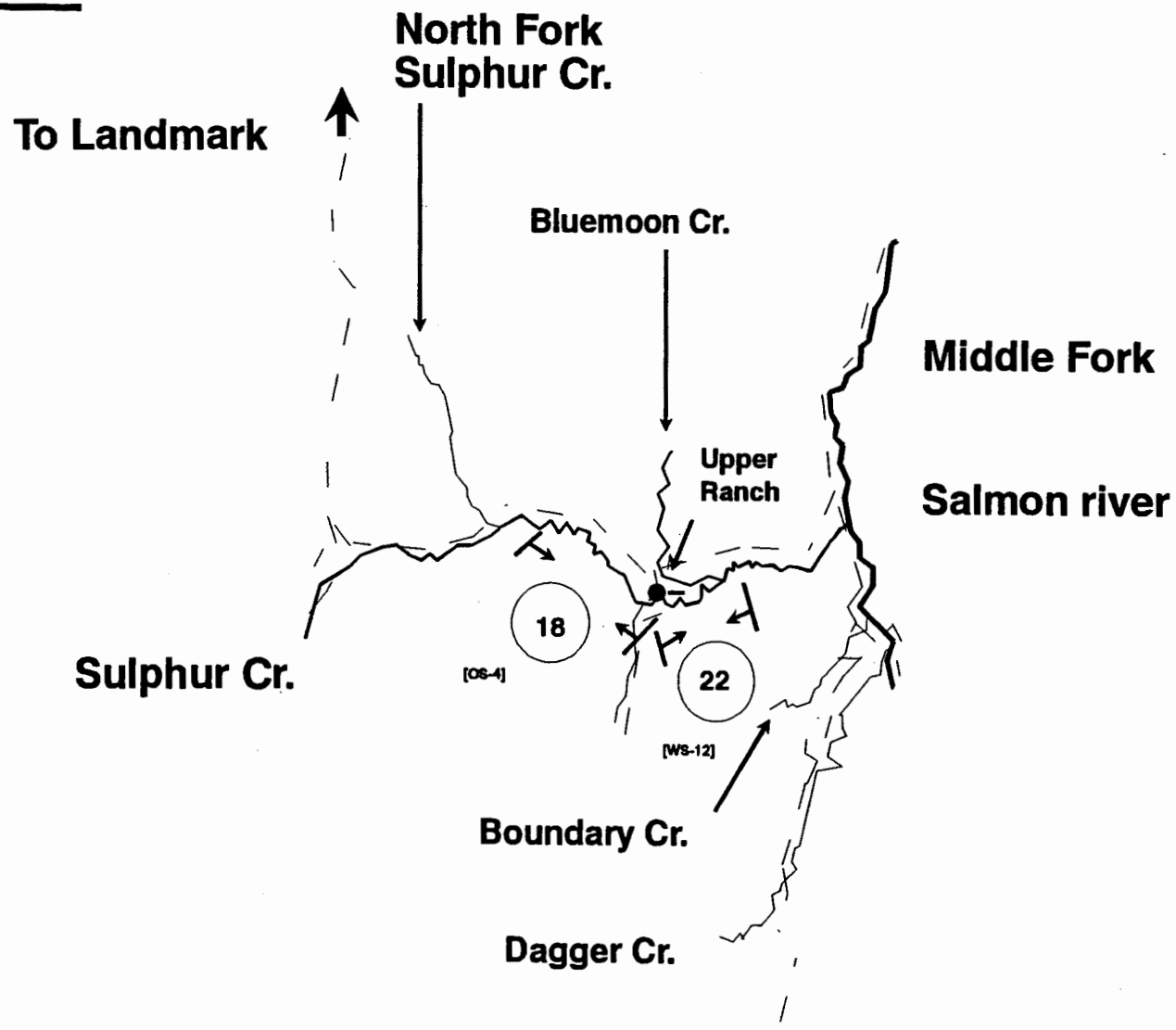
REMARKS Ground



MAP-06

DRAINAGE M.F. Salmon River
STREAM Sulphur Creek
OBSERVATION CONDITIONS Good
TIMING Early On Time Late

SURVEY DATE 8/23/90
MAP SCALE 1.3 cm = 1 mile
OBSERVER Holubetz,Grunder,Petrosky
REMARKS Ground



MAP-07

DRAINAGE Middle Fork Salmon River

STREAM Camas Creek

OBSERVATION CONDITIONS

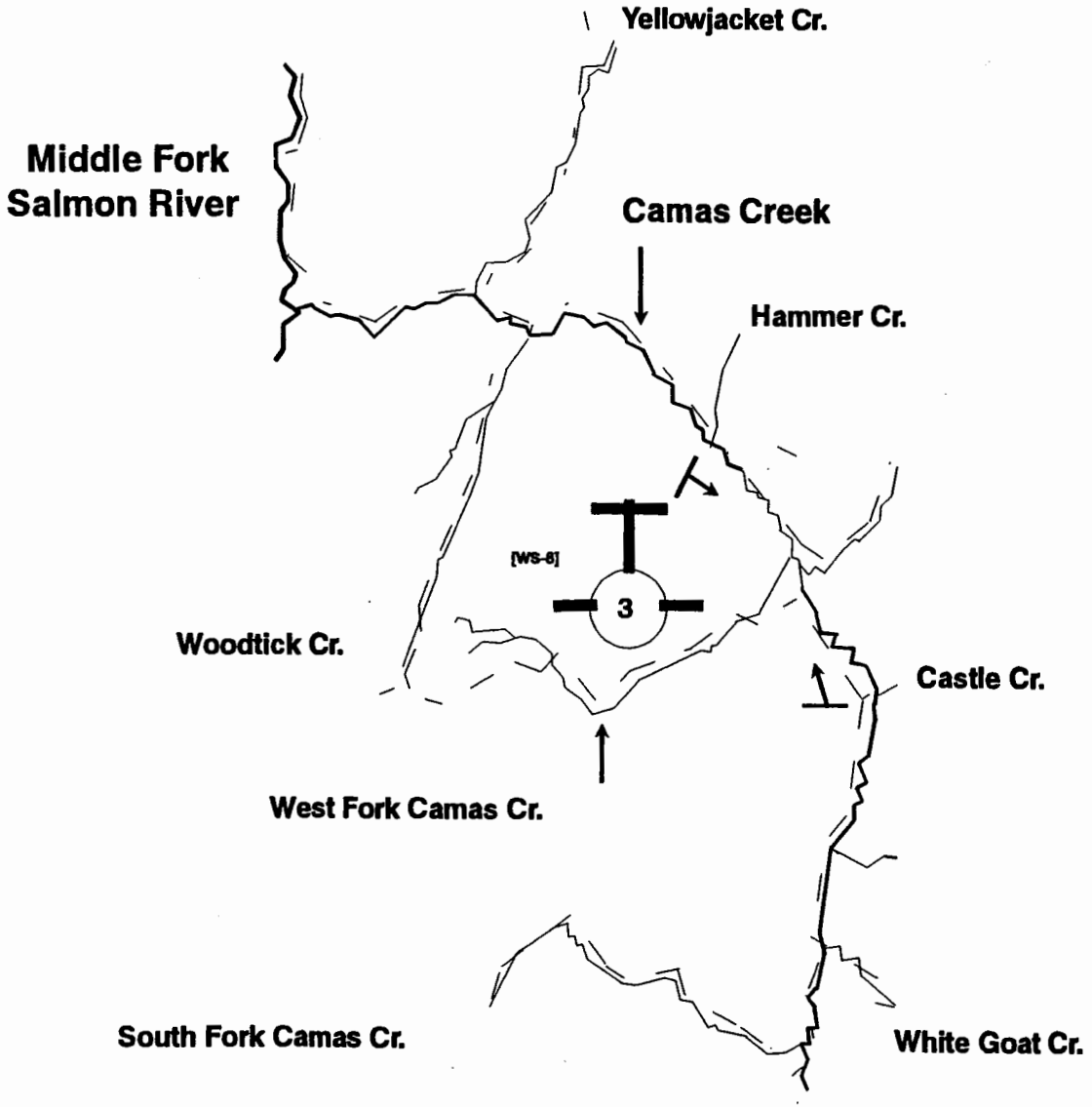
TIMING Early **On Time** Late

SURVEY DATE 9/08/90

MAP SCALE 1.10 cm = 1 mile

OBSERVER Lukens

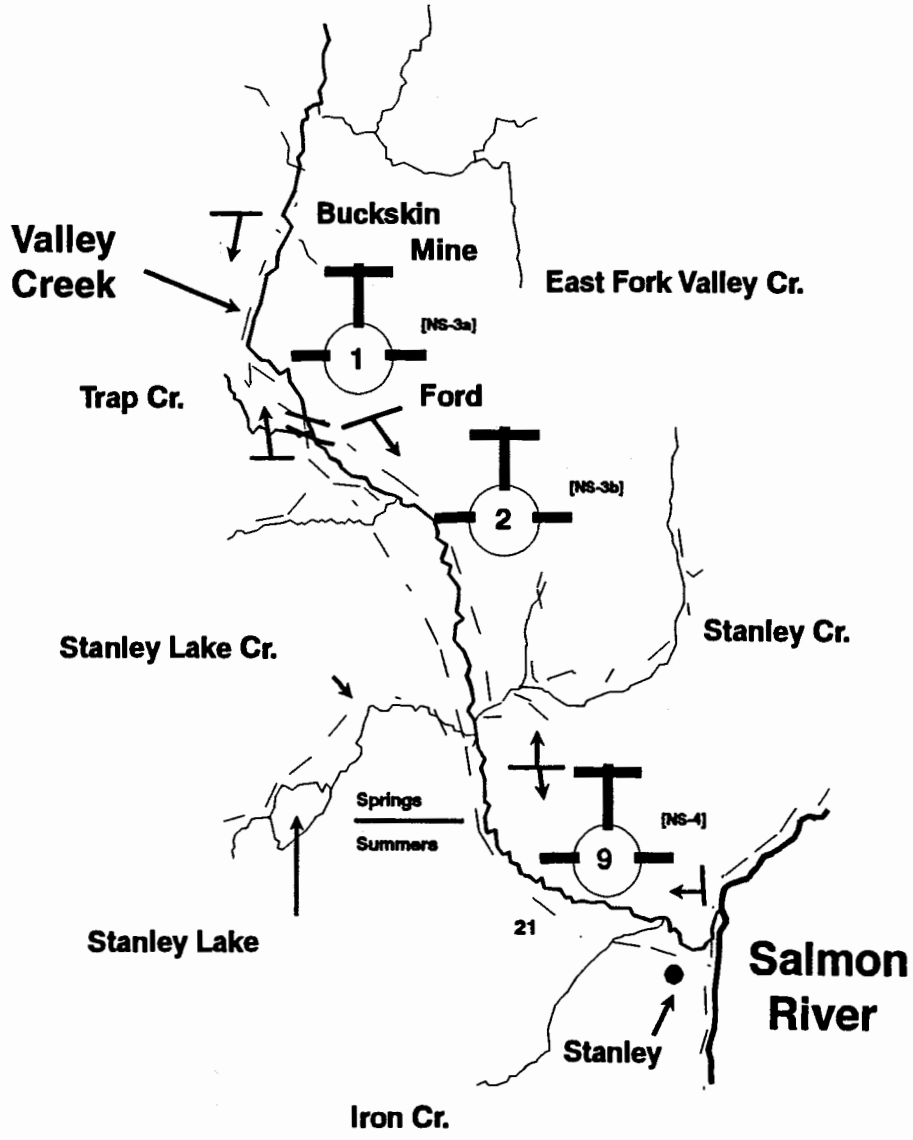
REMARKS



MAP-08

DRAINAGE Salmon River
STREAM Valley Creek
OBSERVATION CONDITIONS
TIMING Early On Time Late

SURVEY DATE 9/07/90
MAP SCALE 1.6 cm = 1 mile
OBSERVER Lukens
REMARKS Helicopter



MAP-09

DRAINAGE Salmon River

STREAM Salmon River

OBSERVATION CONDITIONS

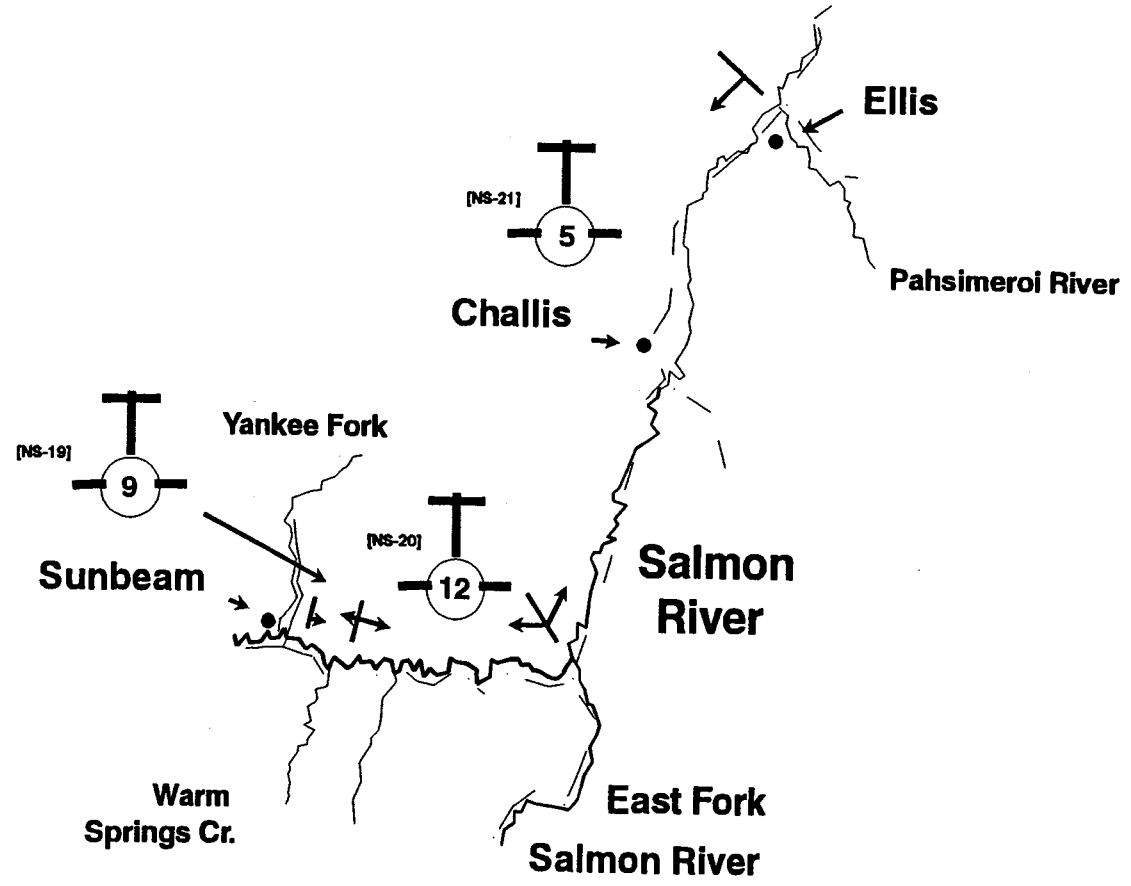
TIMING Early On Time Late

SURVEY DATE 9/07/90

MAP SCALE 0.35 cm = 1 mile

OBSERVER Lukens

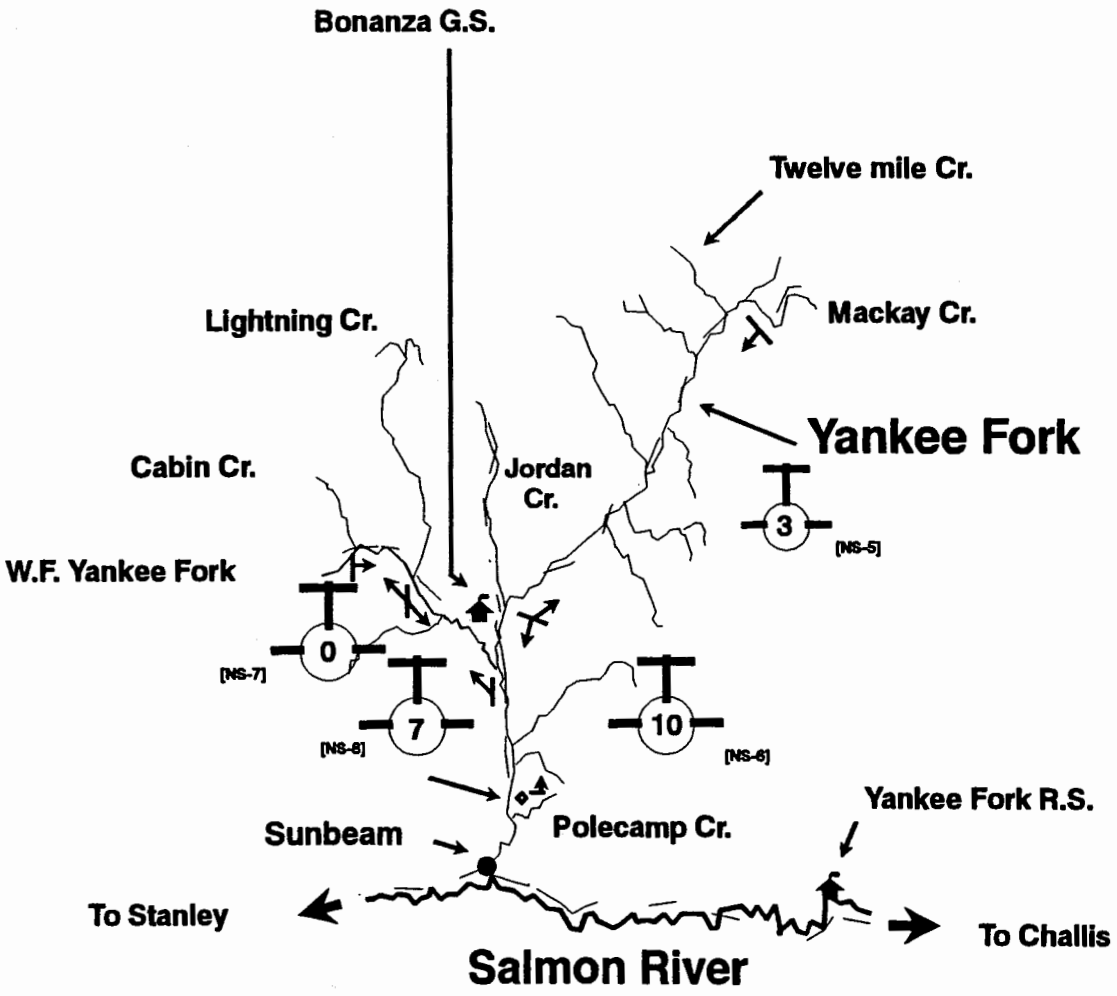
REMARKS Helicopter



MAP-10

DRAINAGE Salmon River
STREAM Yankee Fork
OBSERVATION CONDITIONS
TIMING Early On Time Late

SURVEY DATE 9/07/90
MAP SCALE 0.70 cm = 1 mile
OBSERVER Lukens
REMARKS Helicopter



MAP-11

DRAINAGE Salmon River

STREAM East Fork Salmon River

OBSERVATION CONDITIONS

TIMING Early On Time Late

SURVEY DATE 9/07/90

MAP SCALE 0.6 cm 1 = mile

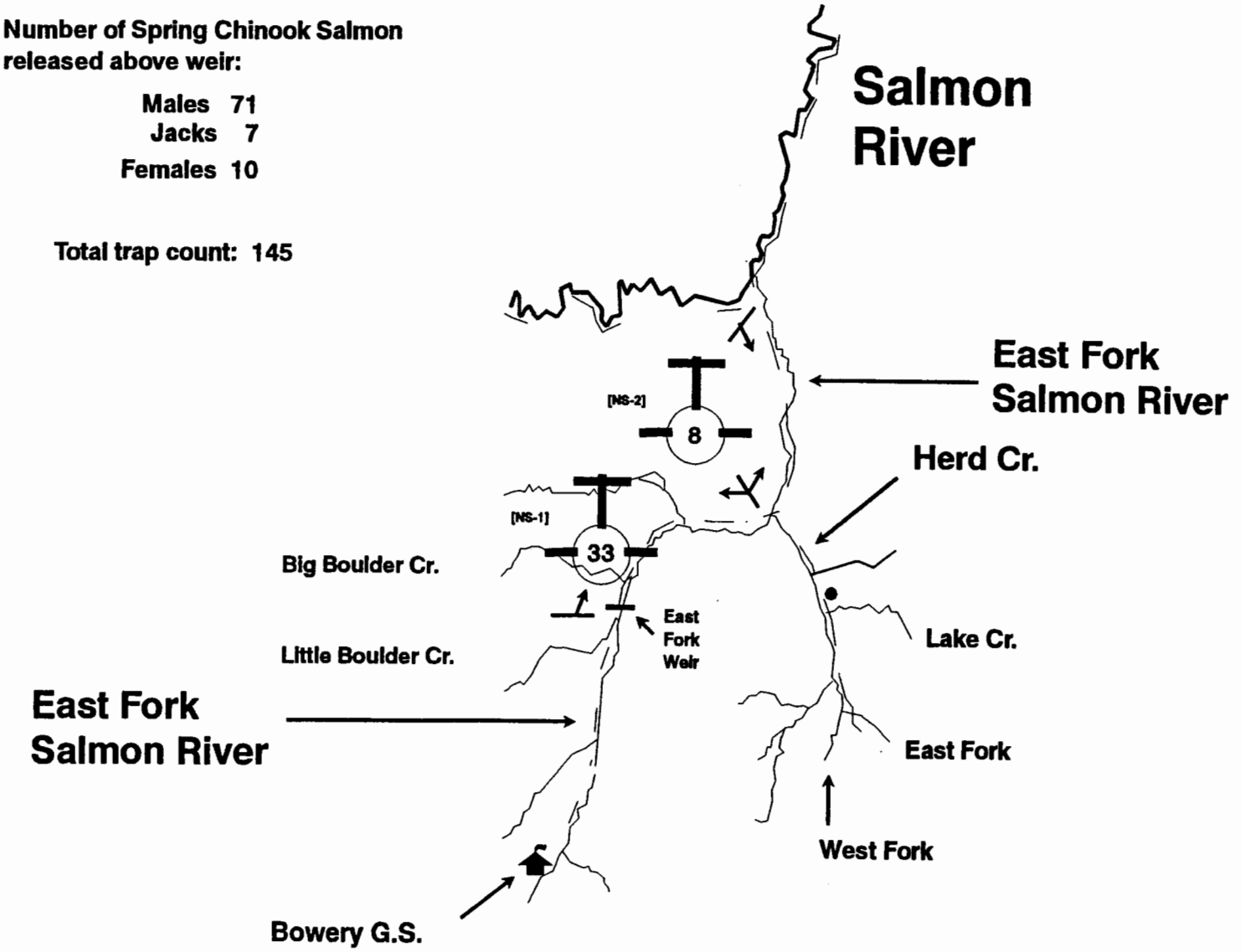
OBSERVER Lukens

REMARKS Helicopter

Number of Spring Chinook Salmon released above weir:

Males 71
Jacks 7
Females 10

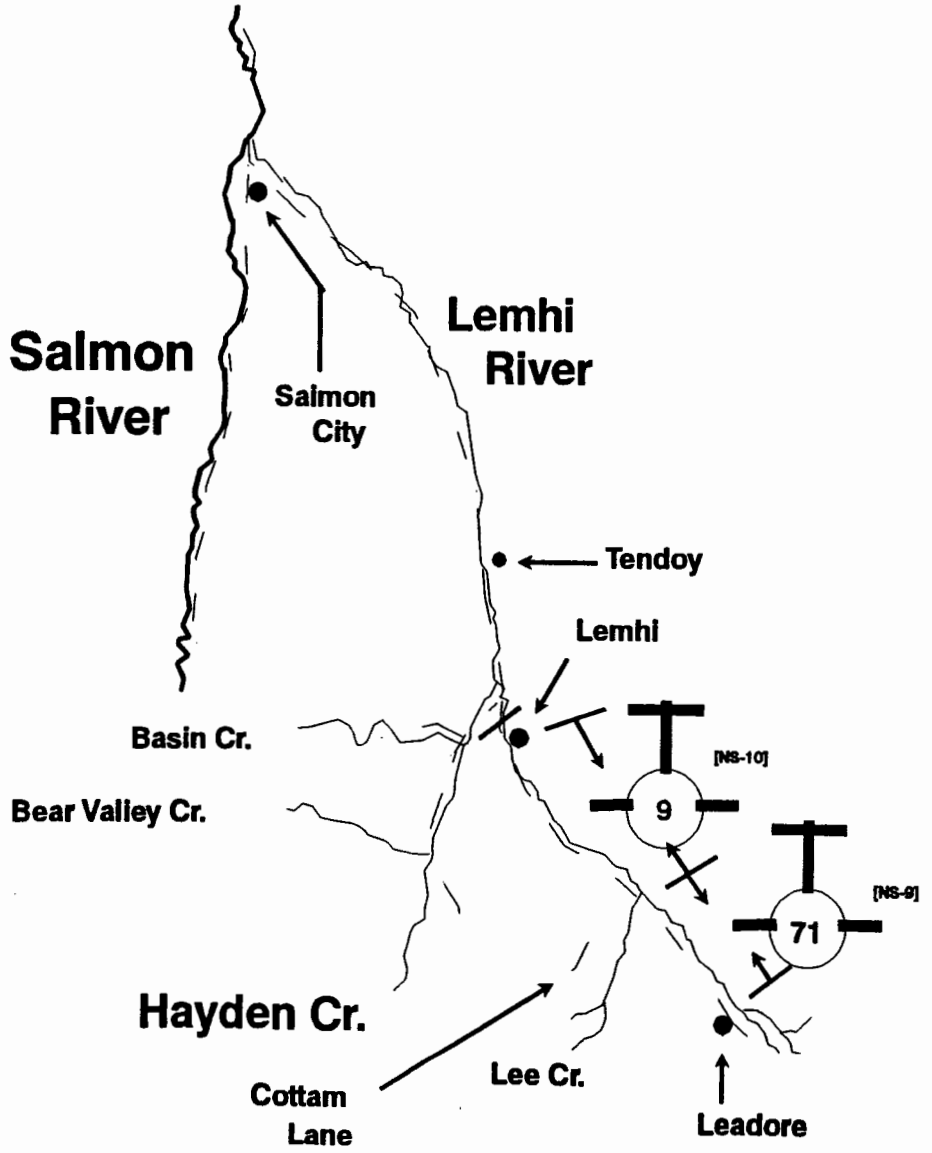
Total trap count: 145



MAP-12

DRAINAGE Salmon River
STREAM Lemhi River
OBSERVATION CONDITIONS
TIMING Early On Time Late

SURVEY DATE 9/08/90
MAP SCALE 0.40 cm = 1 mile
OBSERVER Lukens
REMARKS Helicopter



DRAINAGE Salmon River

STREAM North Fork Salmon River

OBSERVATION CONDITIONS

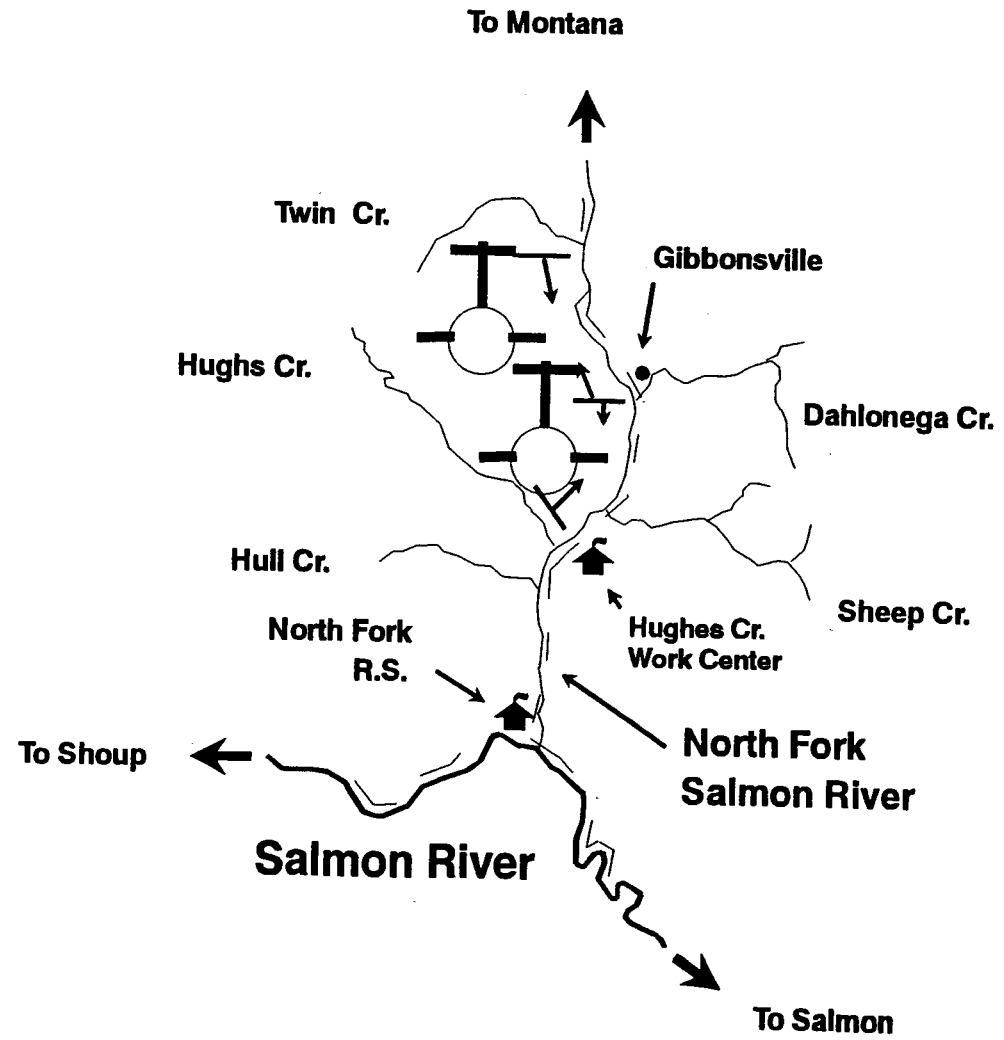
TIMING Early On Time Late

SURVEY DATE

MAP SCALE 0.6 cm = 1 mile

OBSERVER

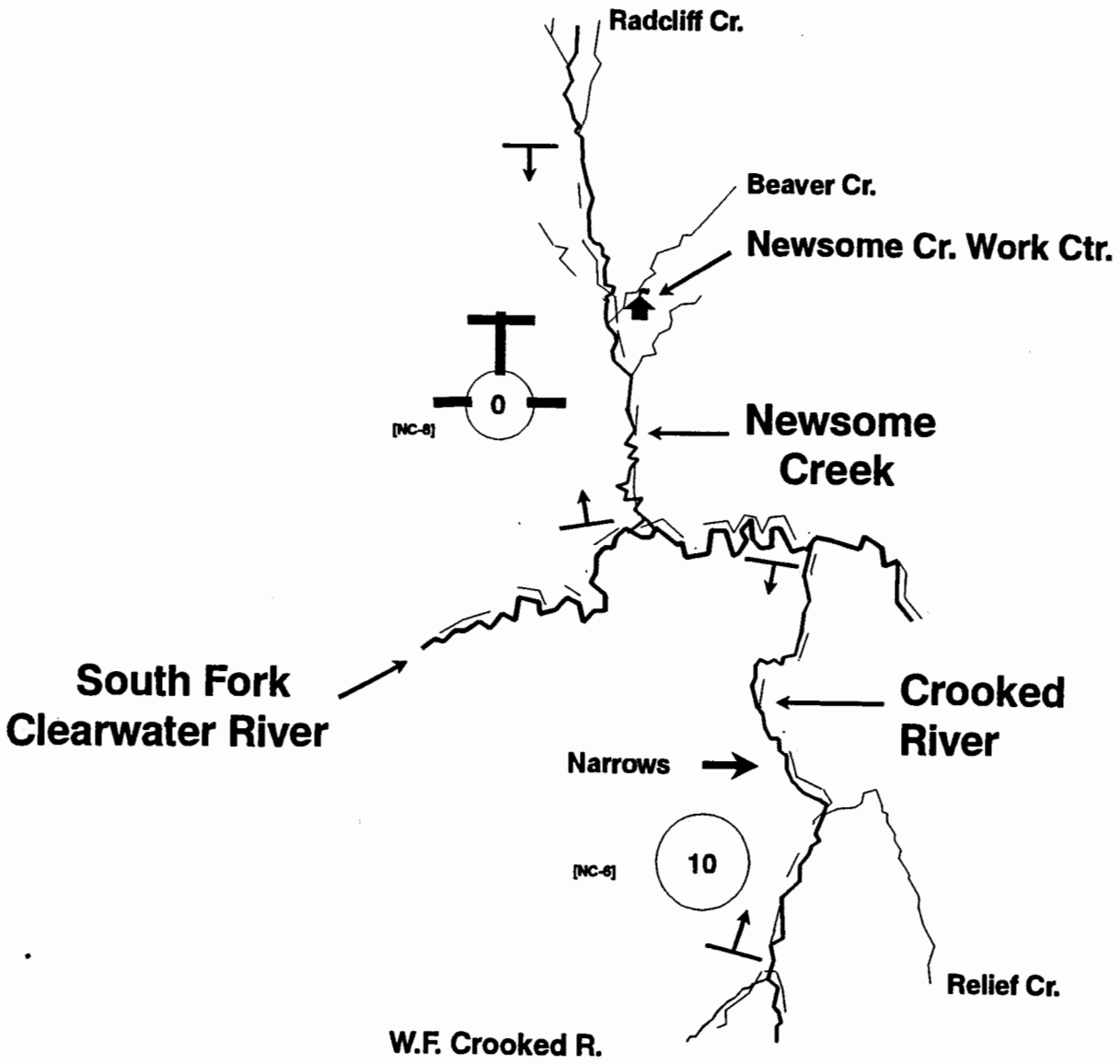
REMARKS No Counts



MAP-14

DRAINAGE Clearwater River
STREAM Crooked River & Newsome Creek
OBSERVATION CONDITIONS
TIMING Early On Time Late

SURVEY DATE (see remarks)
MAP SCALE 0.85 cm = 1 mile
OBSERVER Schriever
REMARKS Ground: 9/12/90
Helicopter: 9/18/90



MAP-15

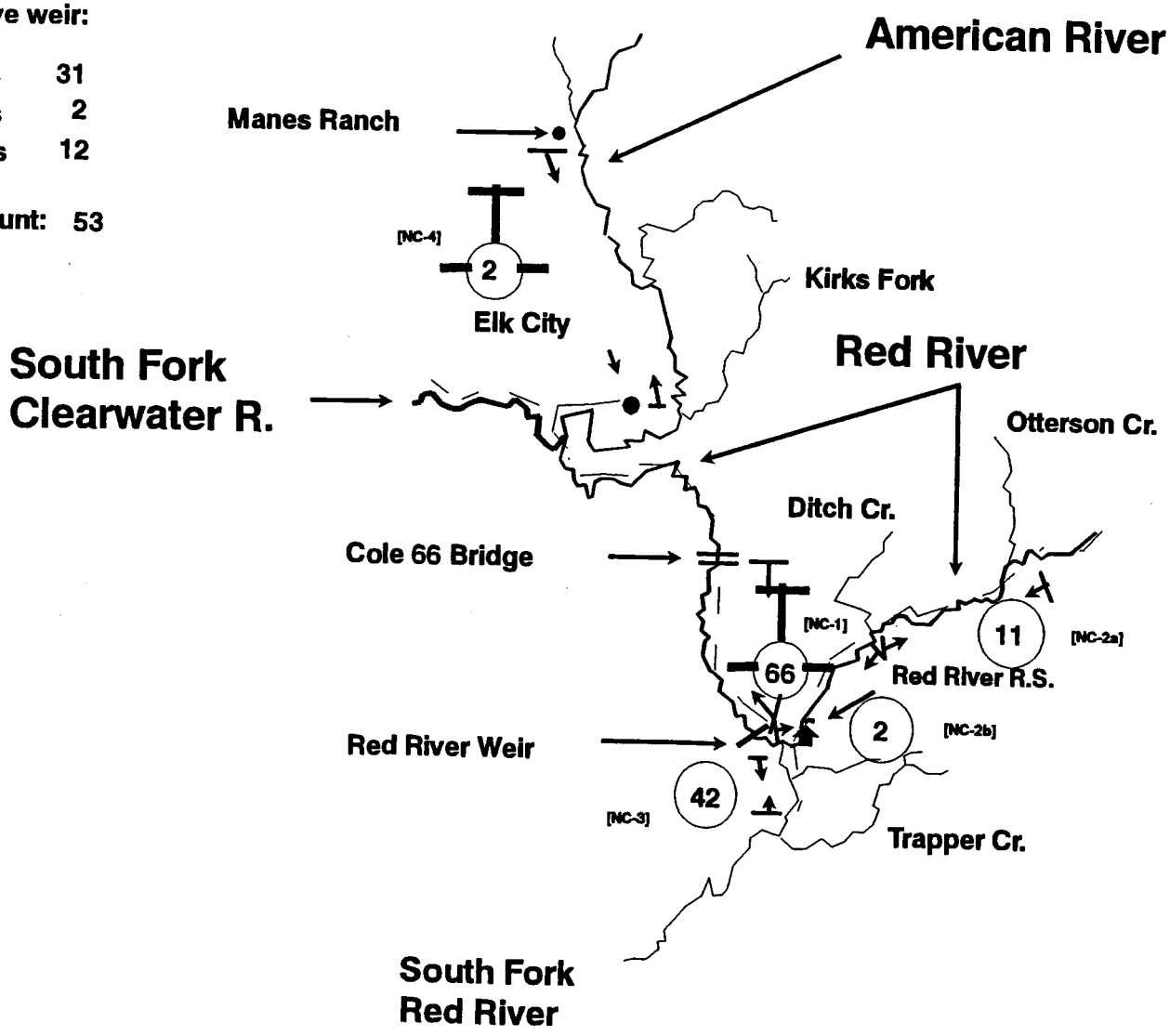
DRAINAGE Clearwater River
STREAM Red R. and American River
OBSERVATION CONDITIONS
TIMING Early On Time Late

SURVEY DATE Ground: 9/15/90
MAP SCALE 0.75 cm = 1 mile
OBSERVER Schriever
REMARKS Helicopter and Ground
Helicopter: 9/18/90

Number of Chinnok Salmon released above weir:

Males	31
Jacks	2
Females	12

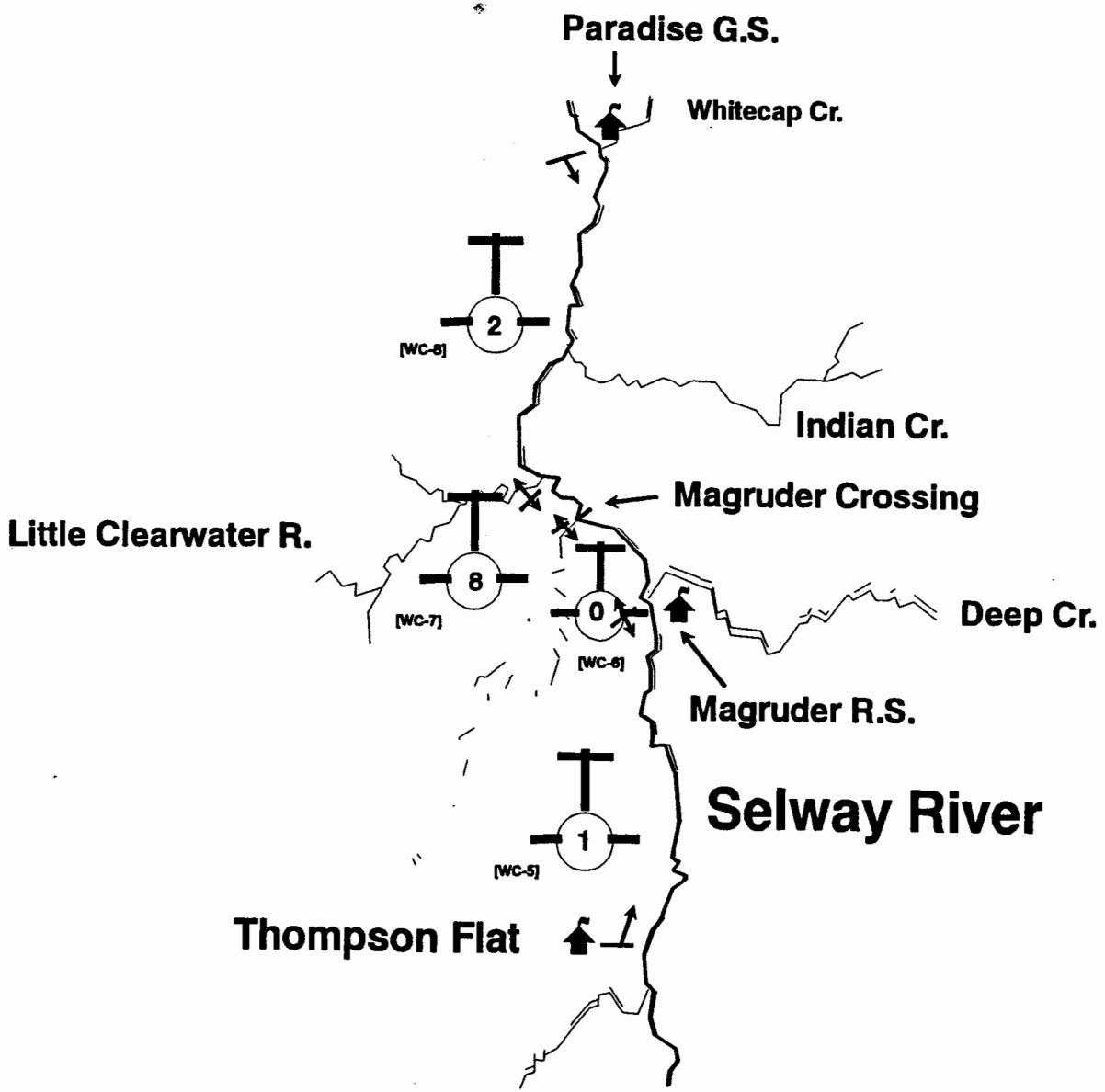
Total trap count: 53



MAP-16

DRAINAGE Clearwater River
STREAM Upper Selway River
OBSERVATION CONDITIONS
TIMING Early On Time Late

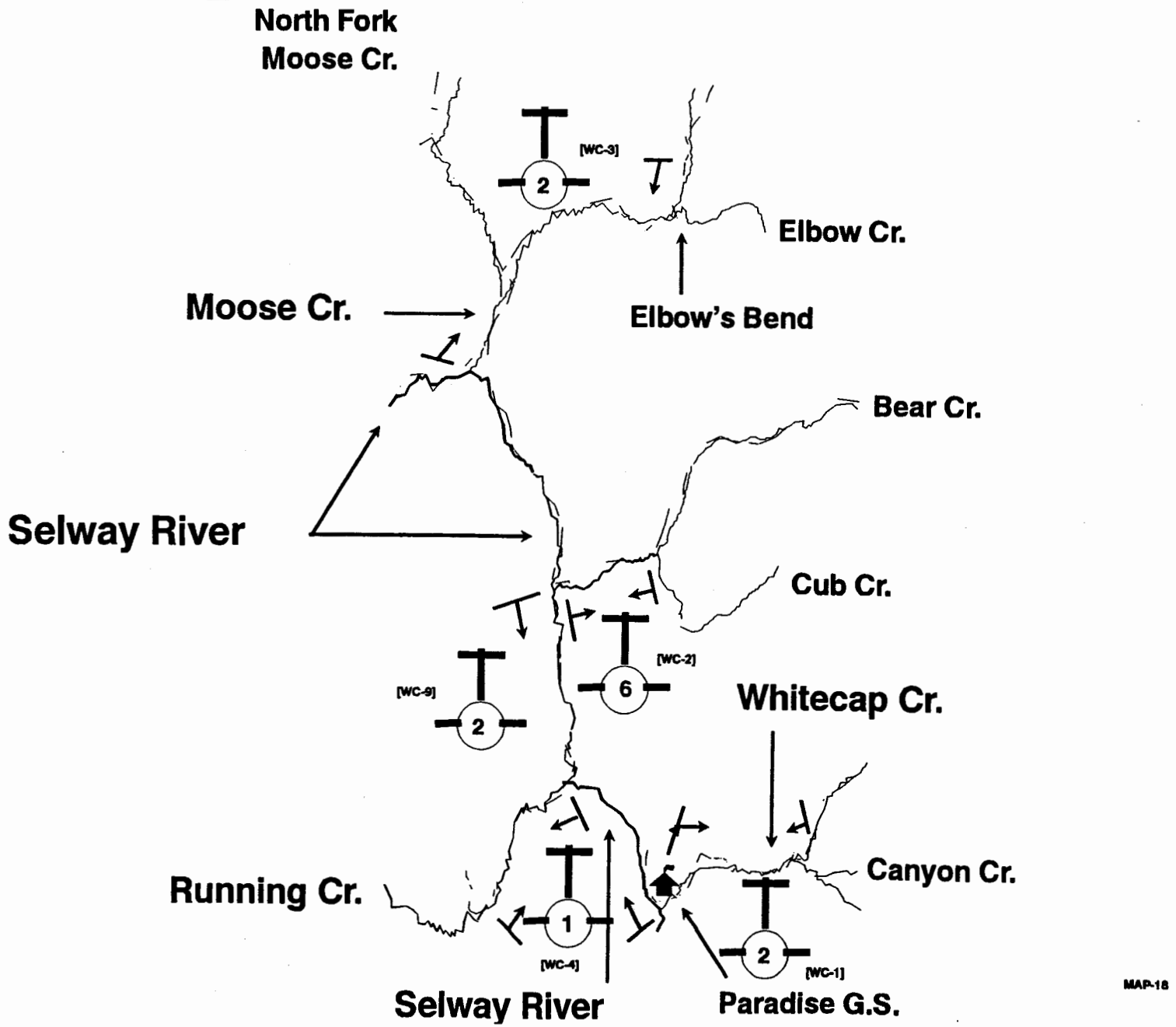
SURVEY DATE 9/17/90
MAP SCALE 0.85 cm = 1 mile
OBSERVER Schriever
REMARKS Helicopter



MAP-17

DRAINAGE Clearwater River
STREAM Selway River & tributaries
OBSERVATION CONDITIONS
TIMING Early On Time Late

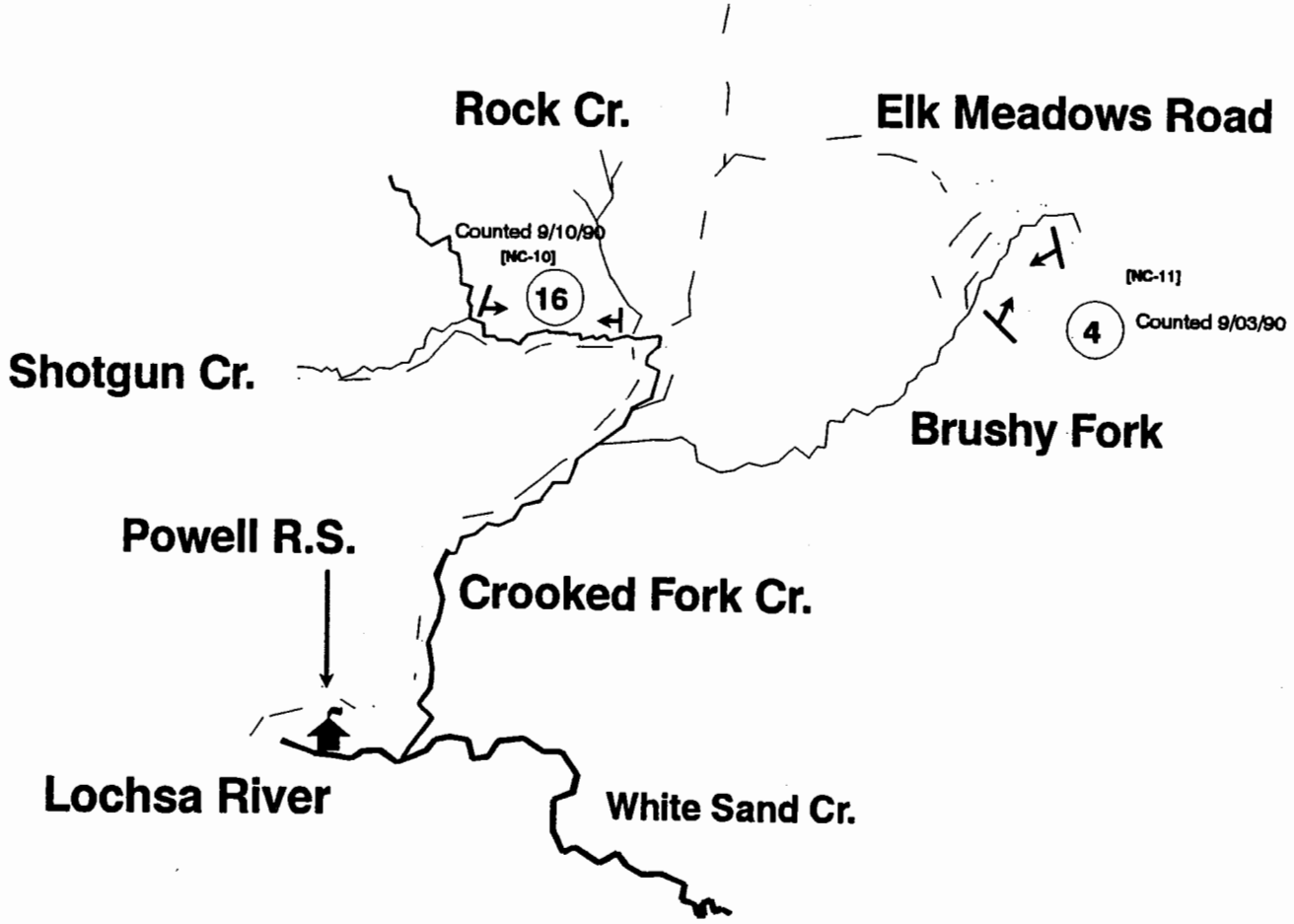
SURVEY DATE 9/17/90
MAP SCALE 0.65 cm = 1 mile
OBSERVER Schriever
REMARKS Helicopter



MAP-18

DRAINAGE Clearwater River
STREAM Crooked Fork & Brushy Fork
OBSERVATION CONDITIONS
TIMING Early On Time Late

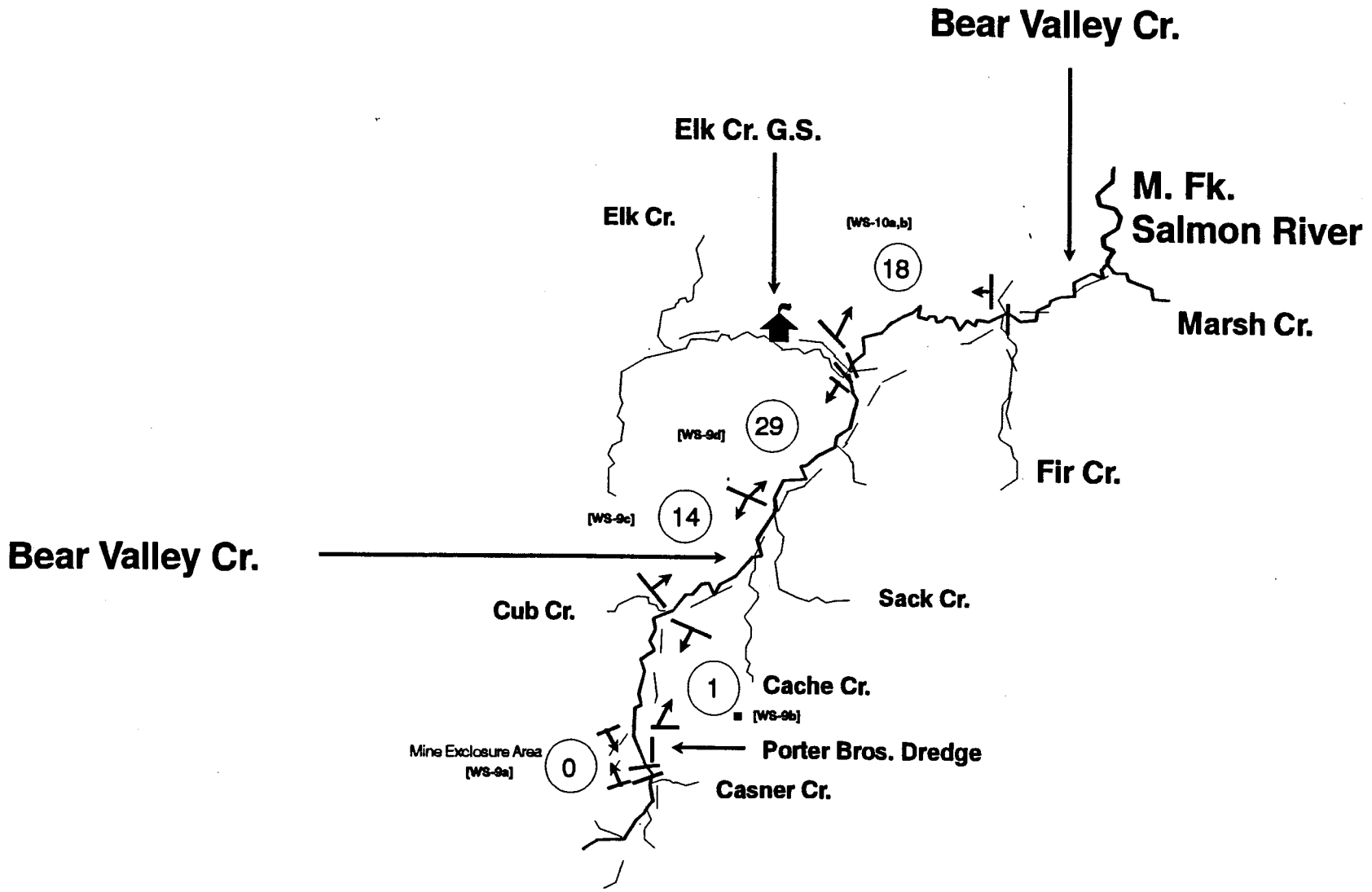
SURVEY DATE Indicated Below
MAP SCALE 0.95 cm = 1 mile
OBSERVER Schriever
REMARKS Ground Count



MAP-19

DRAINAGE Middle Fork Salmon River
STREAM Bear Valley Creek
OBSERVATION CONDITIONS
TIMING Early On Time Late

SURVEY DATE 8/24/90
MAP SCALE 0.90 cm = 1 mile
OBSERVER Scully, Grunder, Holubetz, Parrish
REMARKS Ground



MAP-20

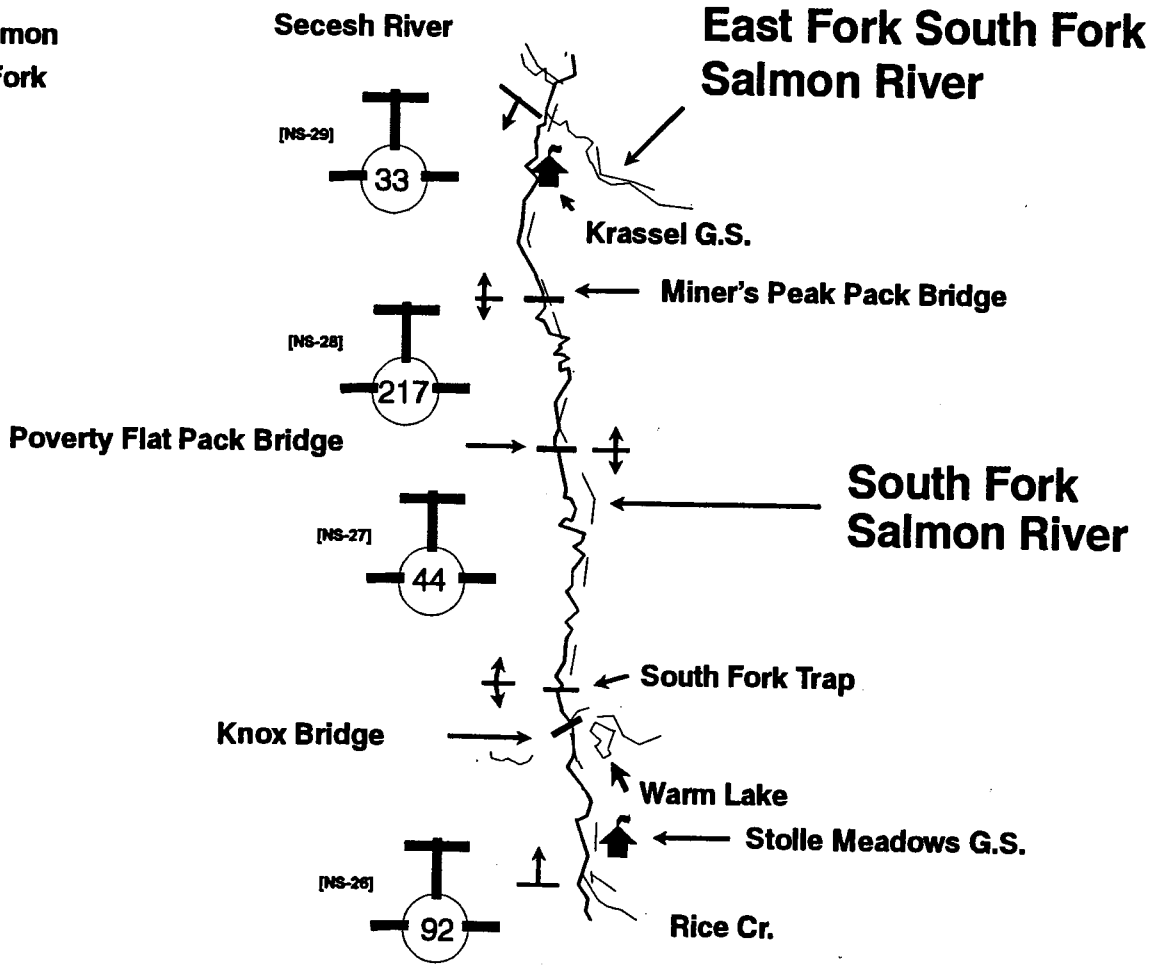
DRAINAGE Salmon River
STREAM South Fork Salmon River
OBSERVATION CONDITIONS Good
TIMING Early On Time Late

SURVEY DATE 8/31/90
MAP SCALE 0.40 cm = 1 mile
OBSERVER Anderson
REMARKS Helicopter NS-27 = turbid

Number of Chinook Salmon released above South Fork Salmon Trap:

Males	197
Jacks	5
Females	116

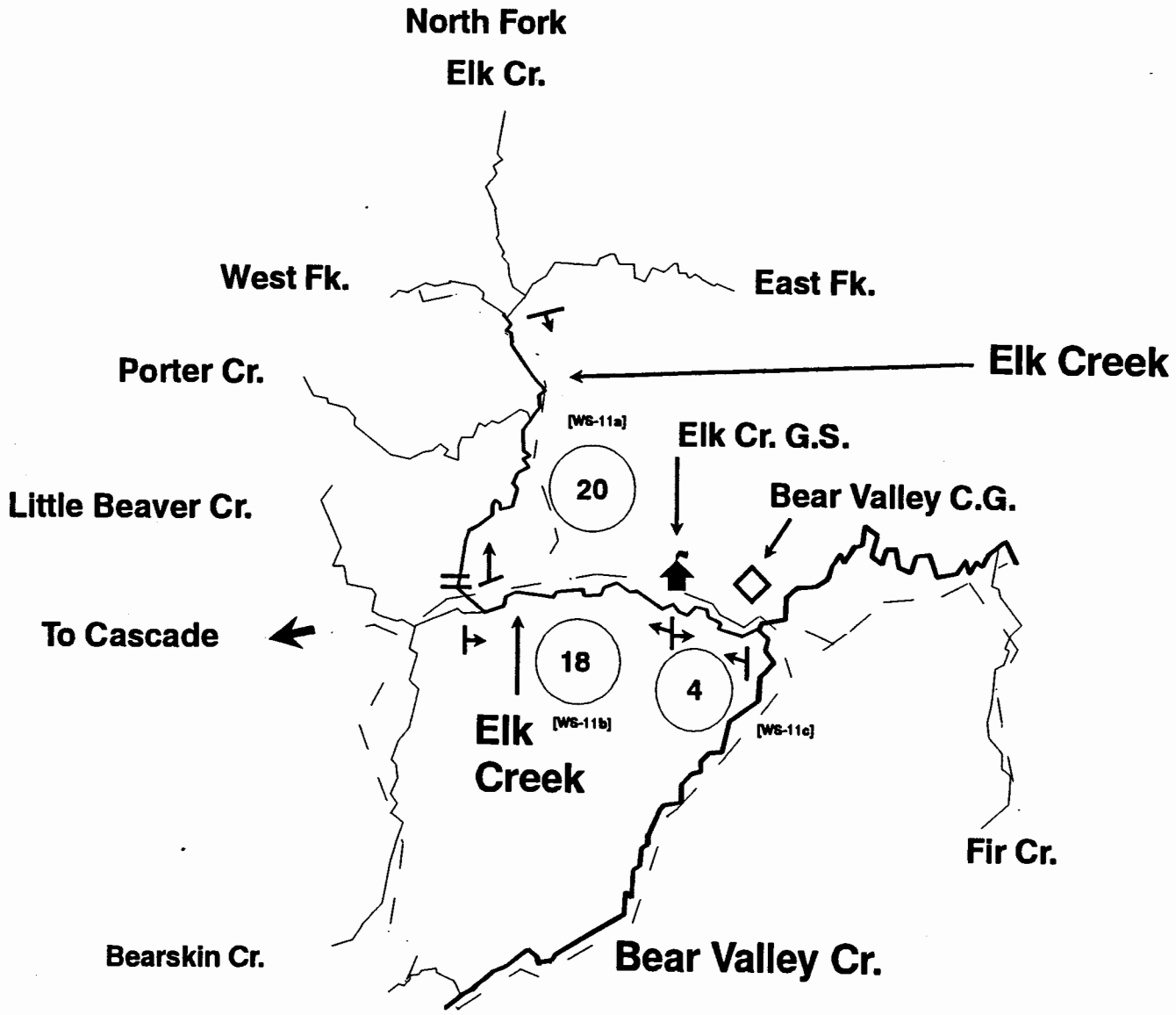
Total trap count: 969



MAP-21

DRAINAGE M.F. Salmon River
STREAM Elk Creek
OBSERVATION CONDITIONS
TIMING Early On Time Late

SURVEY DATE 8/24/90
MAP SCALE 1.3 cm = 1 mile
OBSERVER Petrosky
REMARKS Ground



MAP-22

DRAINAGE Salmon River

STREAM Salmon R. & Tributaries

OBSERVATION CONDITIONS

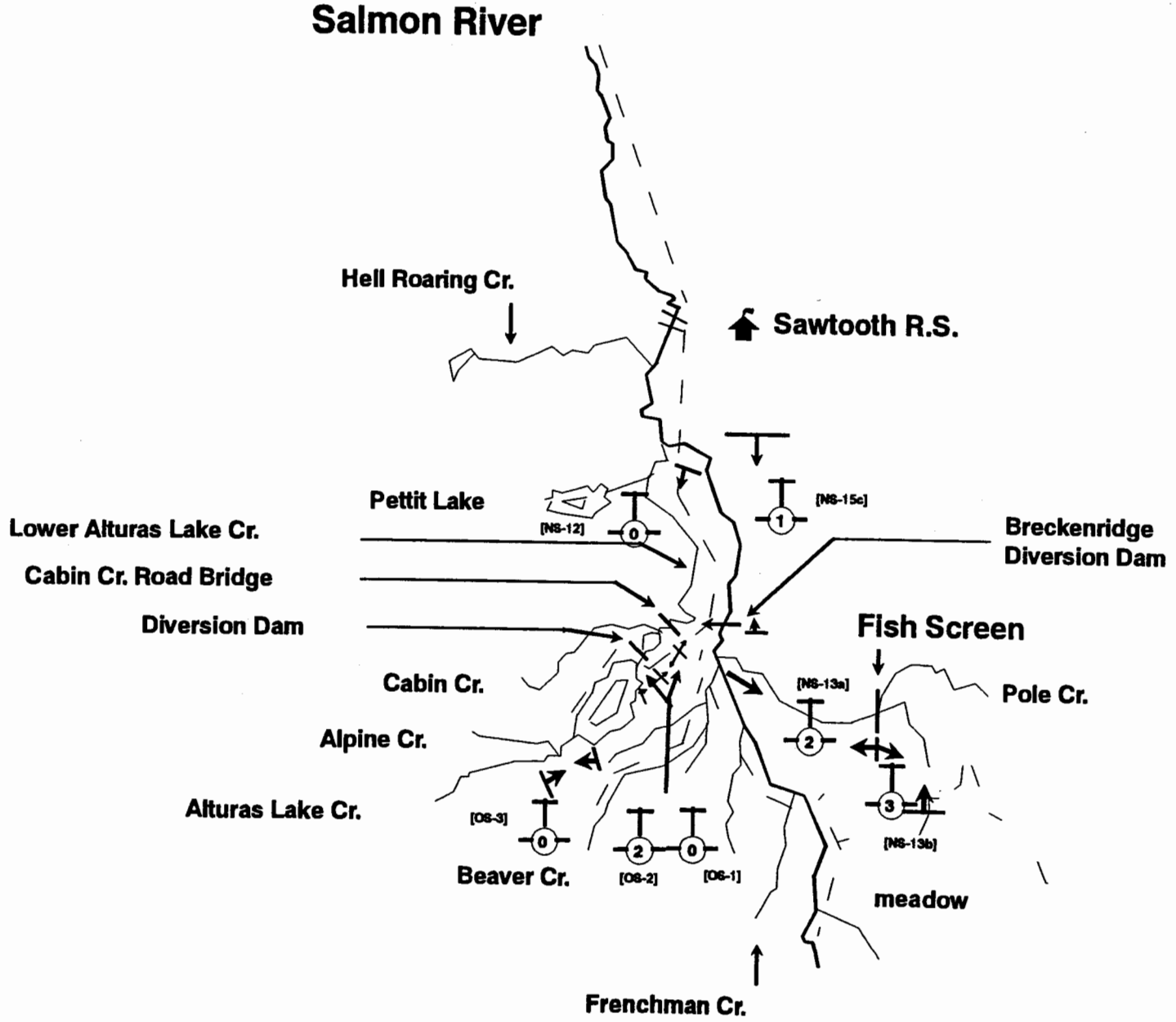
TIMING Early On Time Late

SURVEY DATE 9/7/90

MAP SCALE 0.78 cm = 1 mile

OBSERVER Lukens

REMARKS Helicopter



Appendix F. Maps showing 1991 chinook salmon redd count transects and numbers of redds counted.

LEGEND

Transect Boundaries

Ground Redd Counts

Helicopter Redd Counts

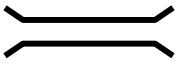
Road

Trail

Forest Service Station

Campground

Road or Highway Bridge

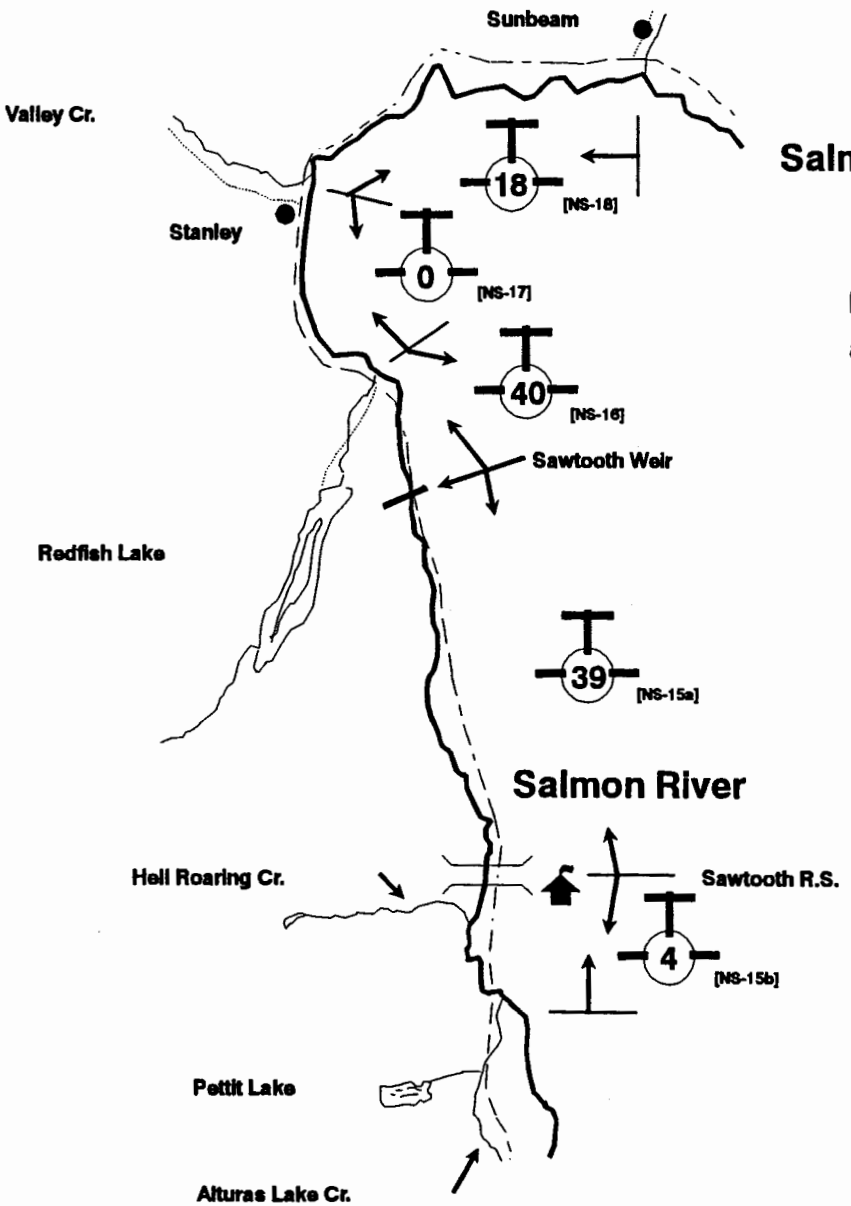


Pack Bridge

Transect Codes (See Appendix B) [WS-##], [NS-##], [WC-##], etc.

DRAINAGE Salmon River
STREAM Salmon River
OBSERVATION CONDITIONS
TIMING Early On Time Late

SURVEY DATE 9/5/91
MAP SCALE 0.78 cm = 1 mile
OBSERVER Lukens
REMARKS Helicopter



Number of Spring Chinook released above Sawtooth weir:

Males	95
Jacks	49
Females	94

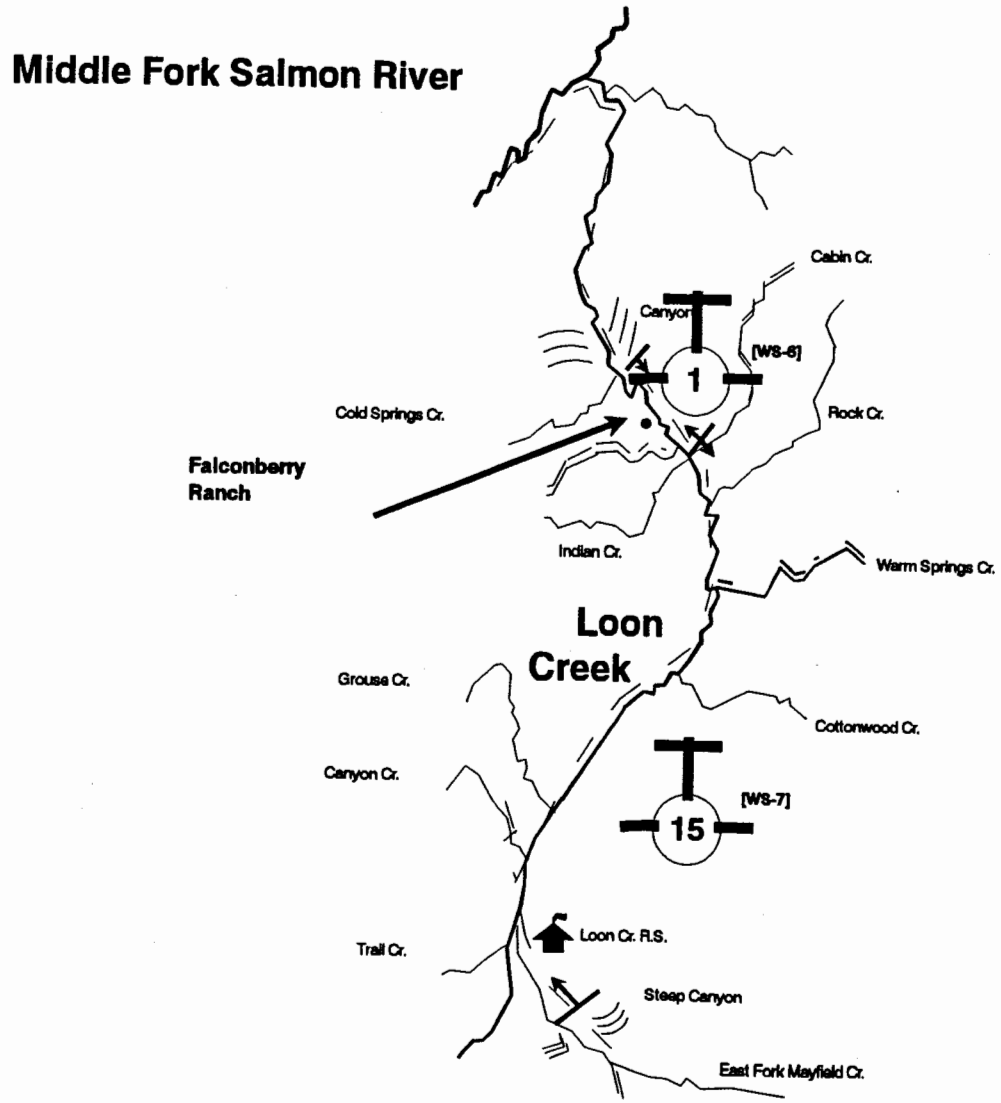
Total trap count: 566

F-2

MAP-01

DRAINAGE Middle Fork Salmon River
STREAM Loon Creek
OBSERVATION CONDITIONS
TIMING Early On Time Late

SURVEY DATE 9/5/91
MAP SCALE 0.85 cm = 1 mile
OBSERVER Lukens
REMARKS Helicopter

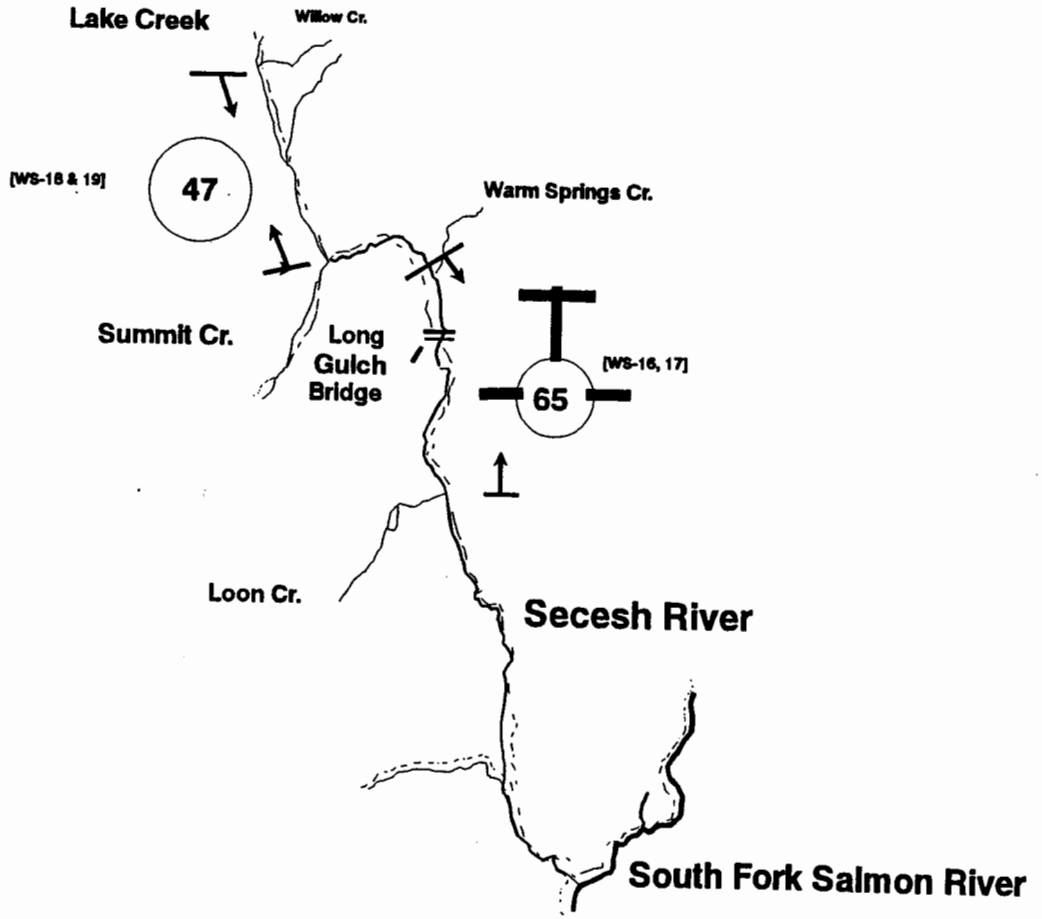


MAP-02

fg3

DRAINAGE South Fork Salmon River
STREAM Lake Creek - Secesh River
OBSERVATION CONDITIONS
TIMING Early On Time Late

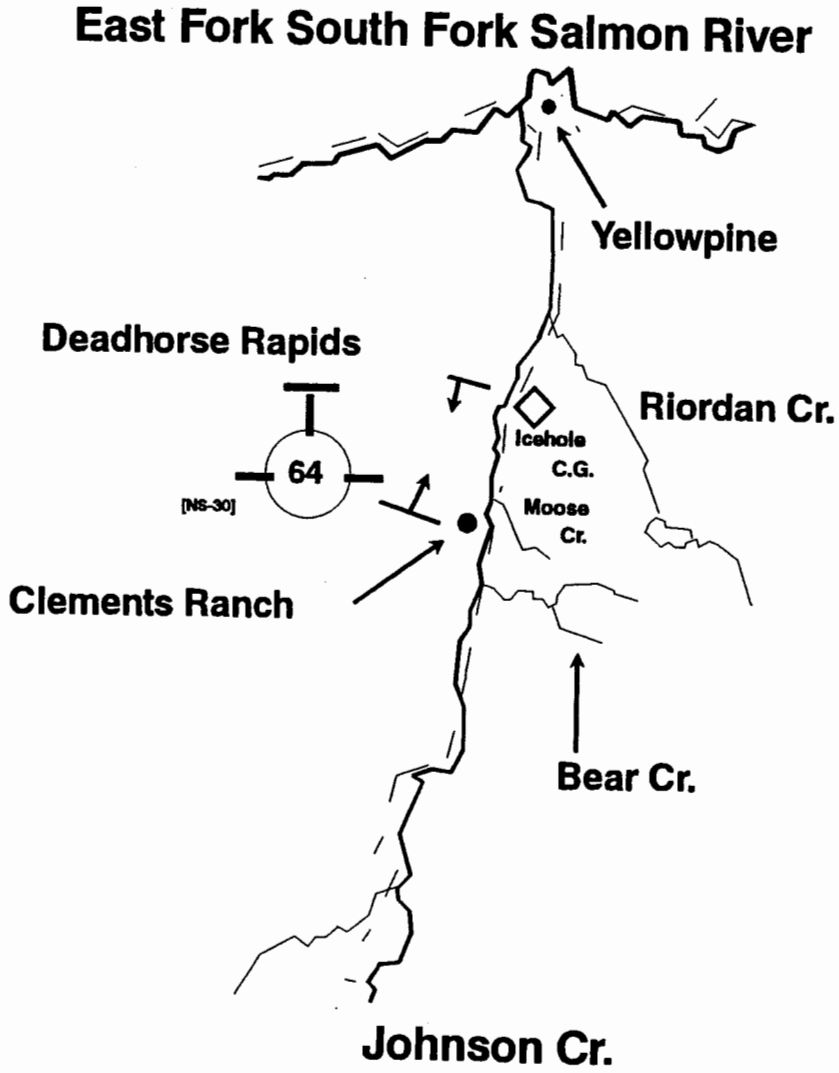
SURVEY DATE
MAP SCALE 0.65 cm = 1 mile
OBSERVER Anderson
REMARKS Ground - Helicopter



MAP-03

DRAINAGE E.F. of South Fork Salmon
STREAM Johnson Creek
OBSERVATION CONDITIONS Good
TIMING Early On Time Late

SURVEY DATE 8/30/91
MAP SCALE 0.95 cm = 1 mile
OBSERVER Anderson
REMARKS Ground



MAP-04

DRAINAGE Middle Fork Salmon River

STREAM Big Creek

OBSERVATION CONDITIONS

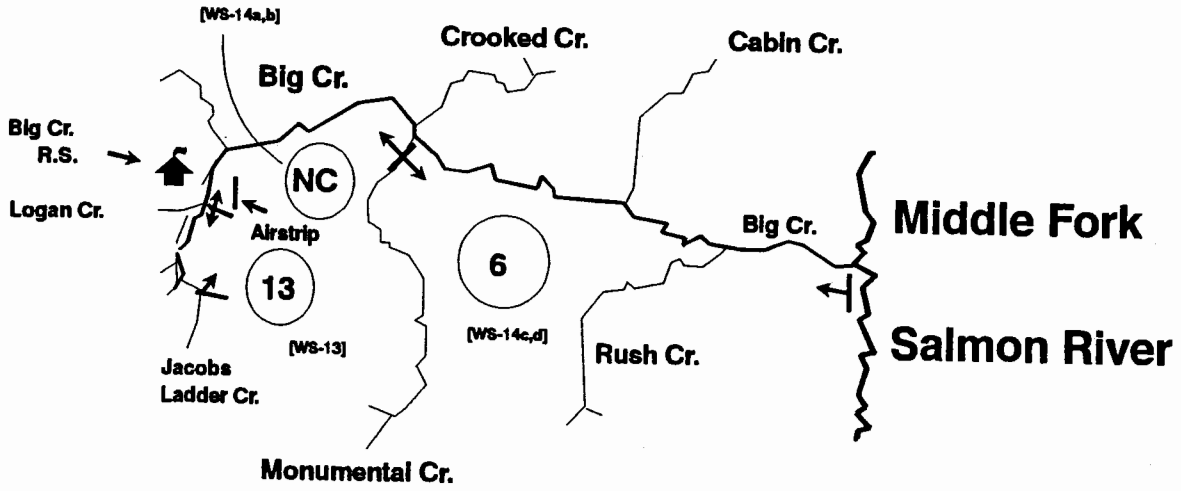
TIMING Early On Time Late

SURVEY DATE WS-14 = 9/5/91

MAP SCALE 0.45 cm = 1 mile

OBSERVER WS-13 = Anderson; WS-14 = Lukens

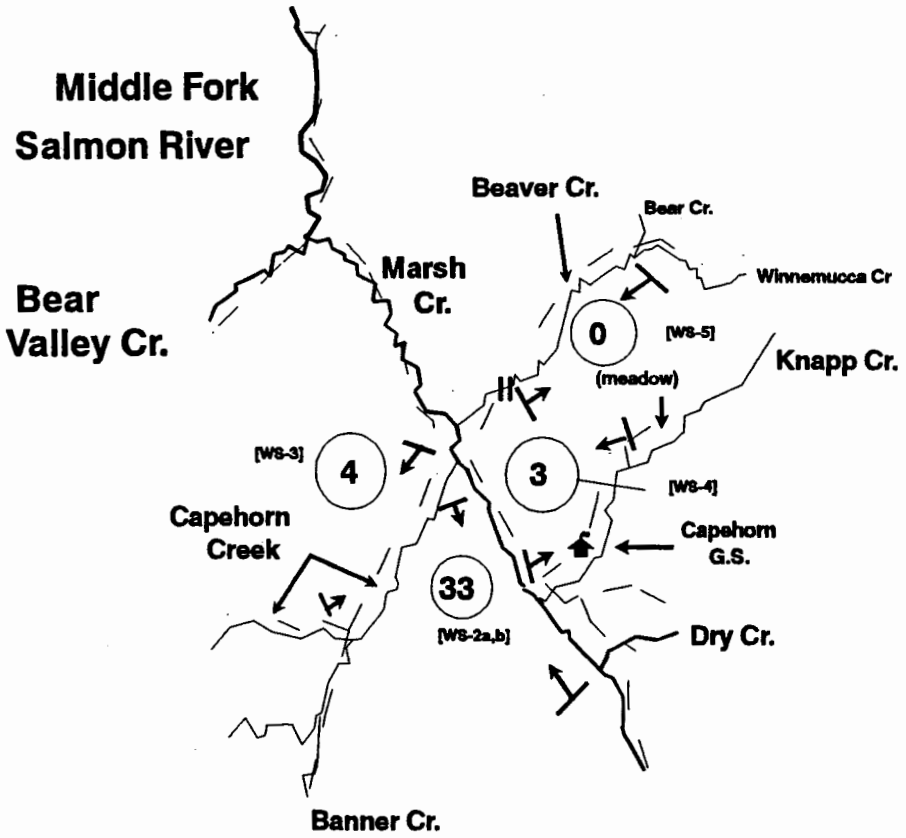
REMARKS WS-13 = Ground; WS-14 = Helicopter



MAP-05

DRAINAGE Middle Fork Salmon River
STREAM Marsh,Beaver,Knapp,and Capehorn Cks.
OBSERVATION CONDITIONS Good
TIMING Early On Time Late

SURVEY DATE WS-2 = 8/22/91; WS-3-5 = 8/15/91
MAP SCALE 1.15 cm = 1 mile
OBSERVER IDFG
REMARKS Ground



MAP-06

DRAINAGE M.F. Salmon River

STREAM Sulphur Creek

OBSERVATION CONDITIONS

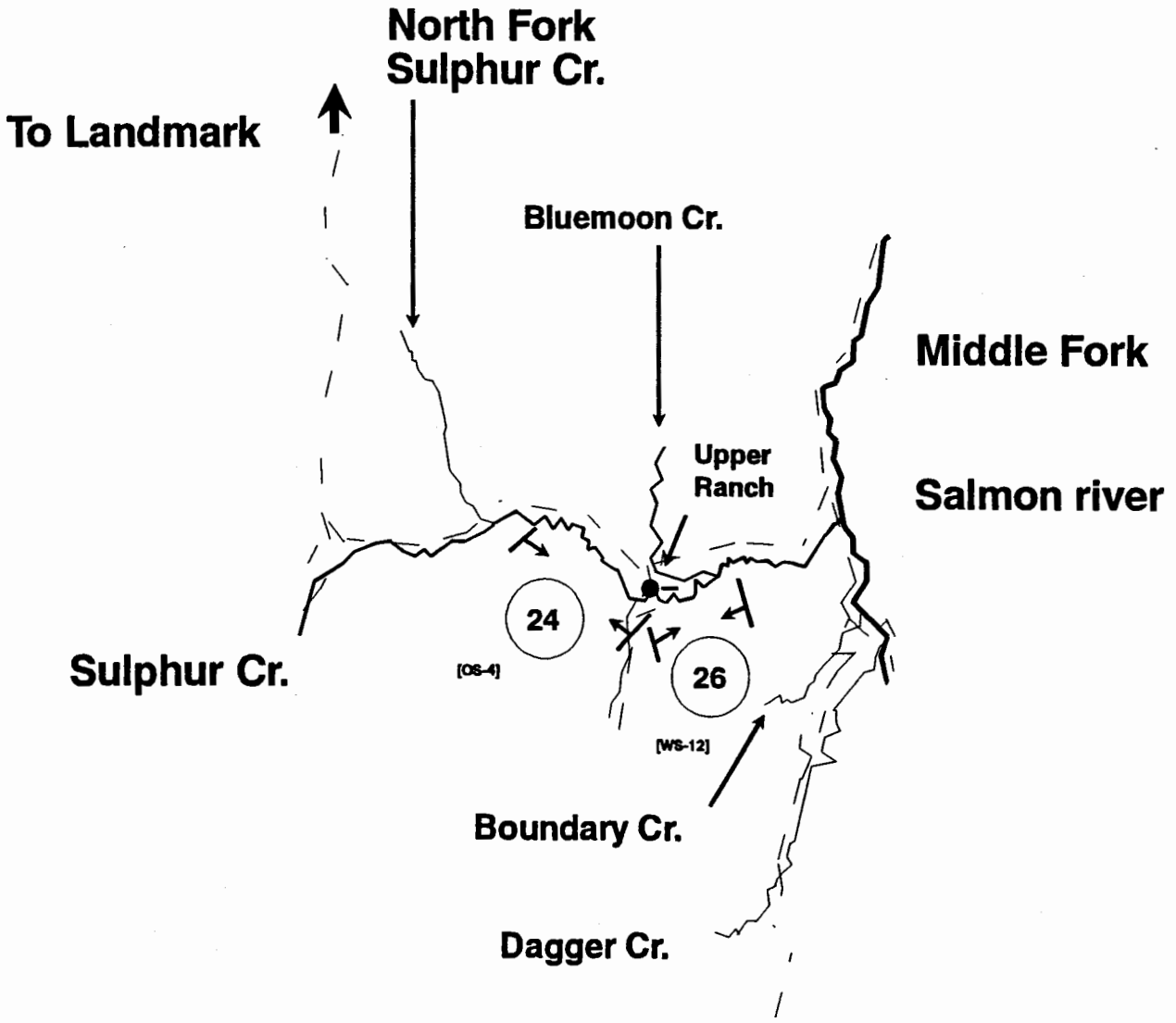
TIMING Early On Time Late

SURVEY DATE 8/20/91

MAP SCALE 1.3 cm = 1 mile

OBSERVER Holubetz

REMARKS Ground



MAP-07

DRAINAGE Middle Fork Salmon River

STREAM Camas Creek

OBSERVATION CONDITIONS

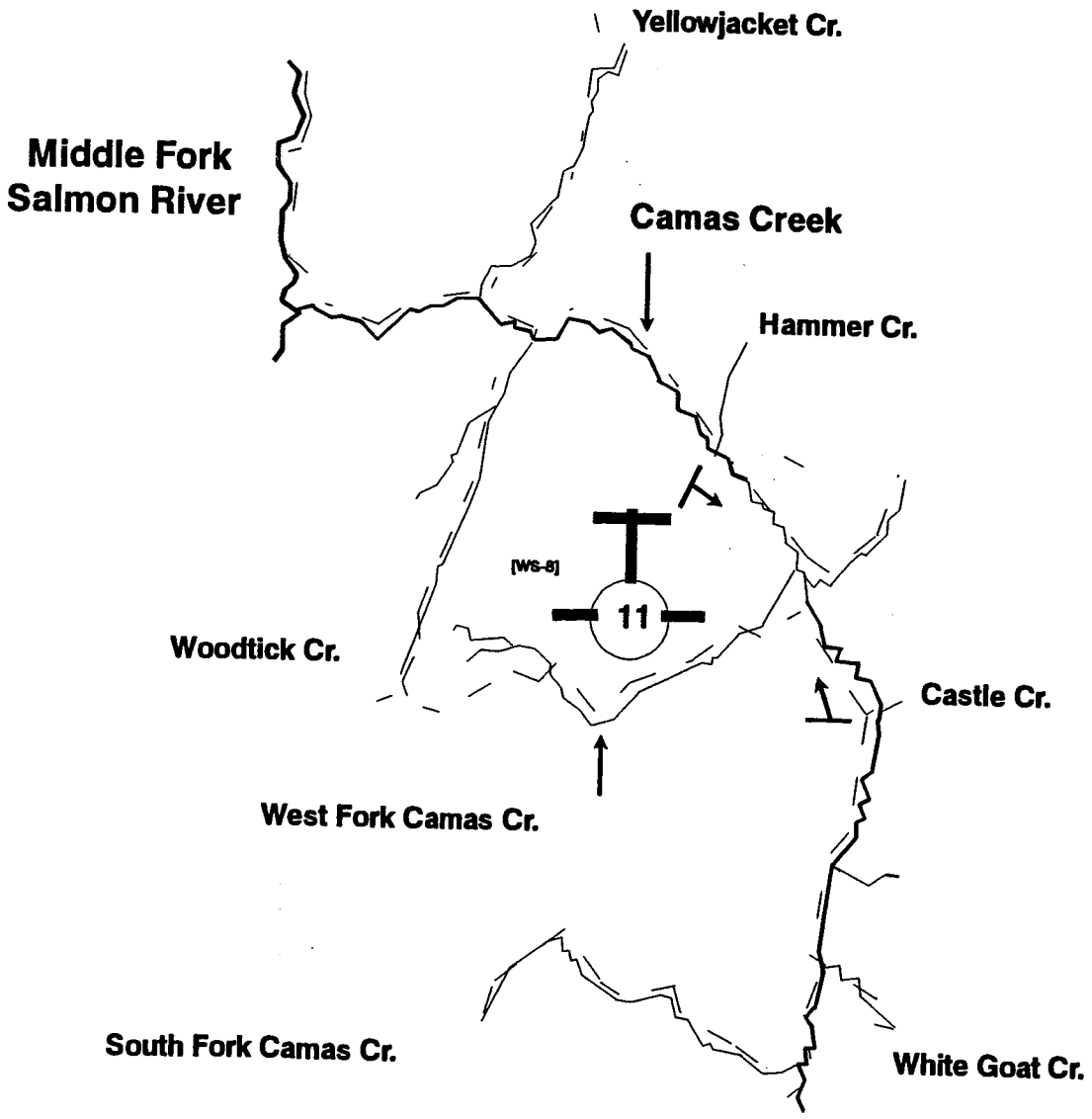
TIMING Early On Time Late

SURVEY DATE 9/5/91

MAP SCALE 1.10 cm = 1 mile

OBSERVER Lukens

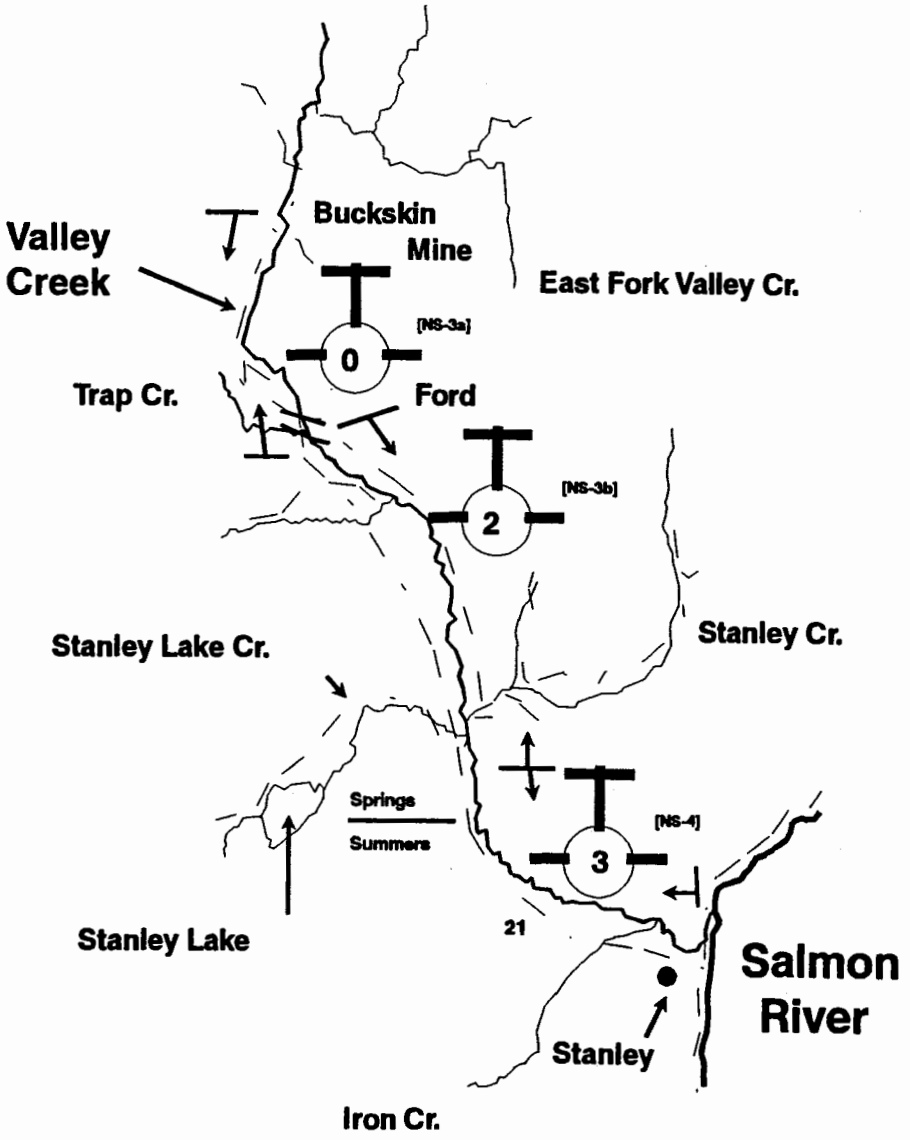
REMARKS Helicopter



MAP-08

DRAINAGE Salmon River
STREAM Valley Creek
OBSERVATION CONDITIONS
TIMING Early On Time Late

SURVEY DATE 9/5/91
MAP SCALE 1.6 cm = 1 mile
OBSERVER Lukens
REMARKS Hellcopter



MAP-09

DRAINAGE Salmon River

STREAM Salmon River

OBSERVATION CONDITIONS

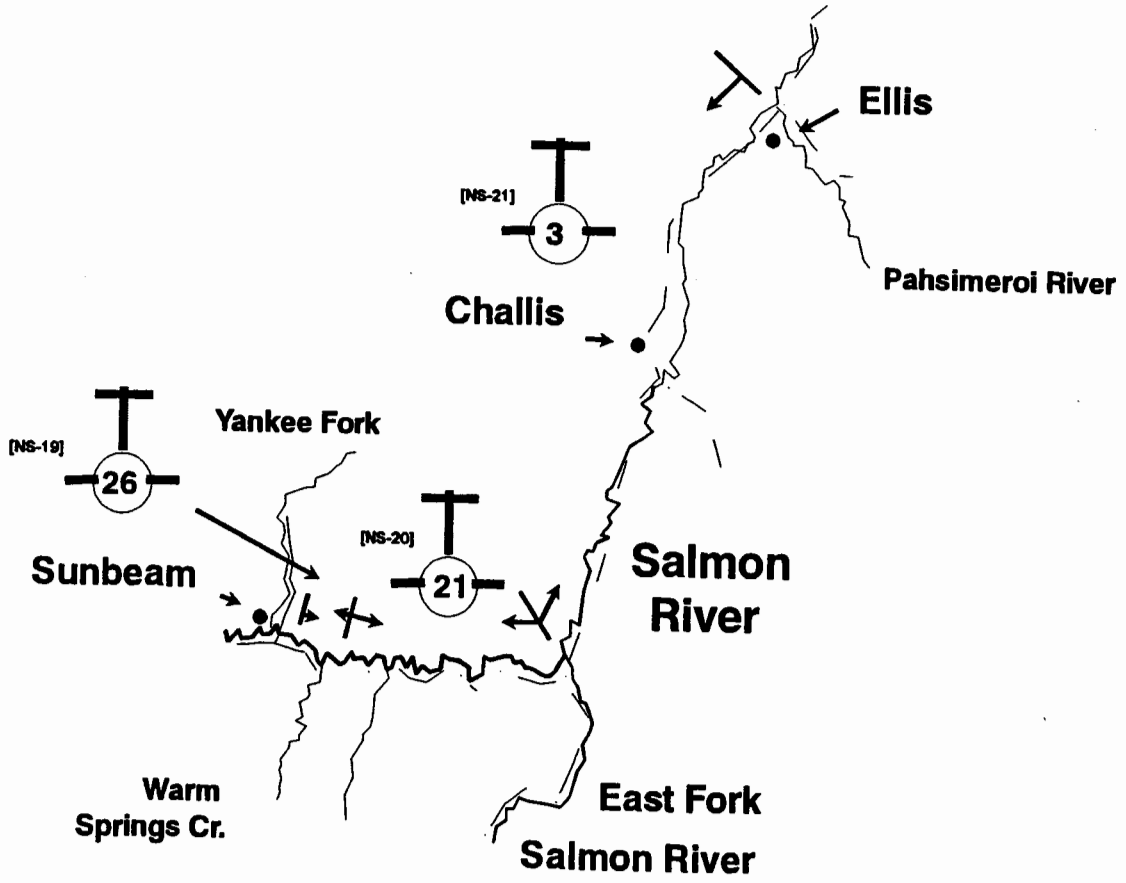
TIMING Early On Time Late

SURVEY DATE 9/5/91

MAP SCALE 0.35 cm = 1 mile

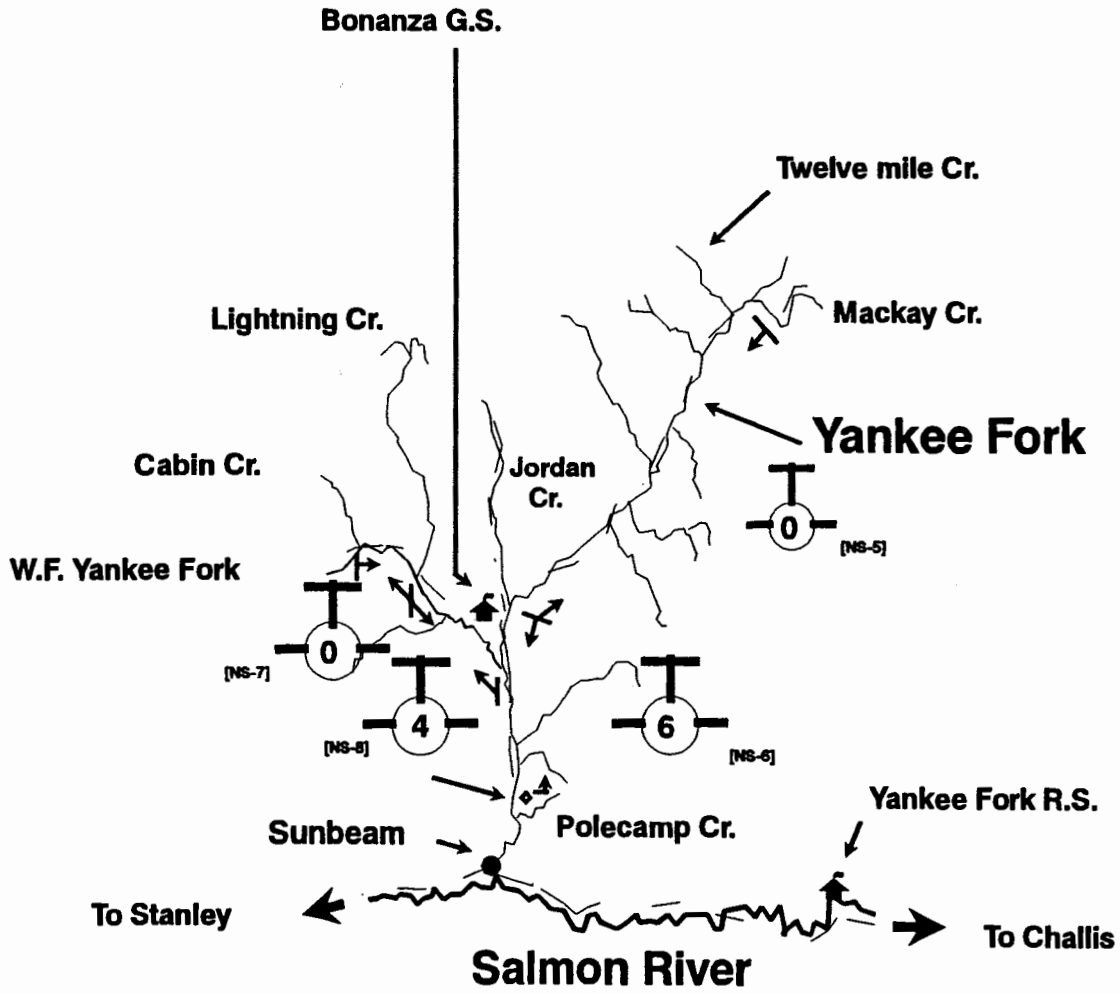
OBSERVER Lukens

REMARKS Helicopter



DRAINAGE Salmon River
STREAM Yankee Fork
OBSERVATION CONDITIONS
TIMING Early On Time Late

SURVEY DATE 9/5/91
MAP SCALE 0.70 cm = 1 mile
OBSERVER Lukens
REMARKS Helicopter



MAP-11

DRAINAGE Salmon River

STREAM East Fork Salmon River

OBSERVATION CONDITIONS

TIMING Early On Time Late

SURVEY DATE 9/5/91

MAP SCALE 0.6 cm 1 = mile

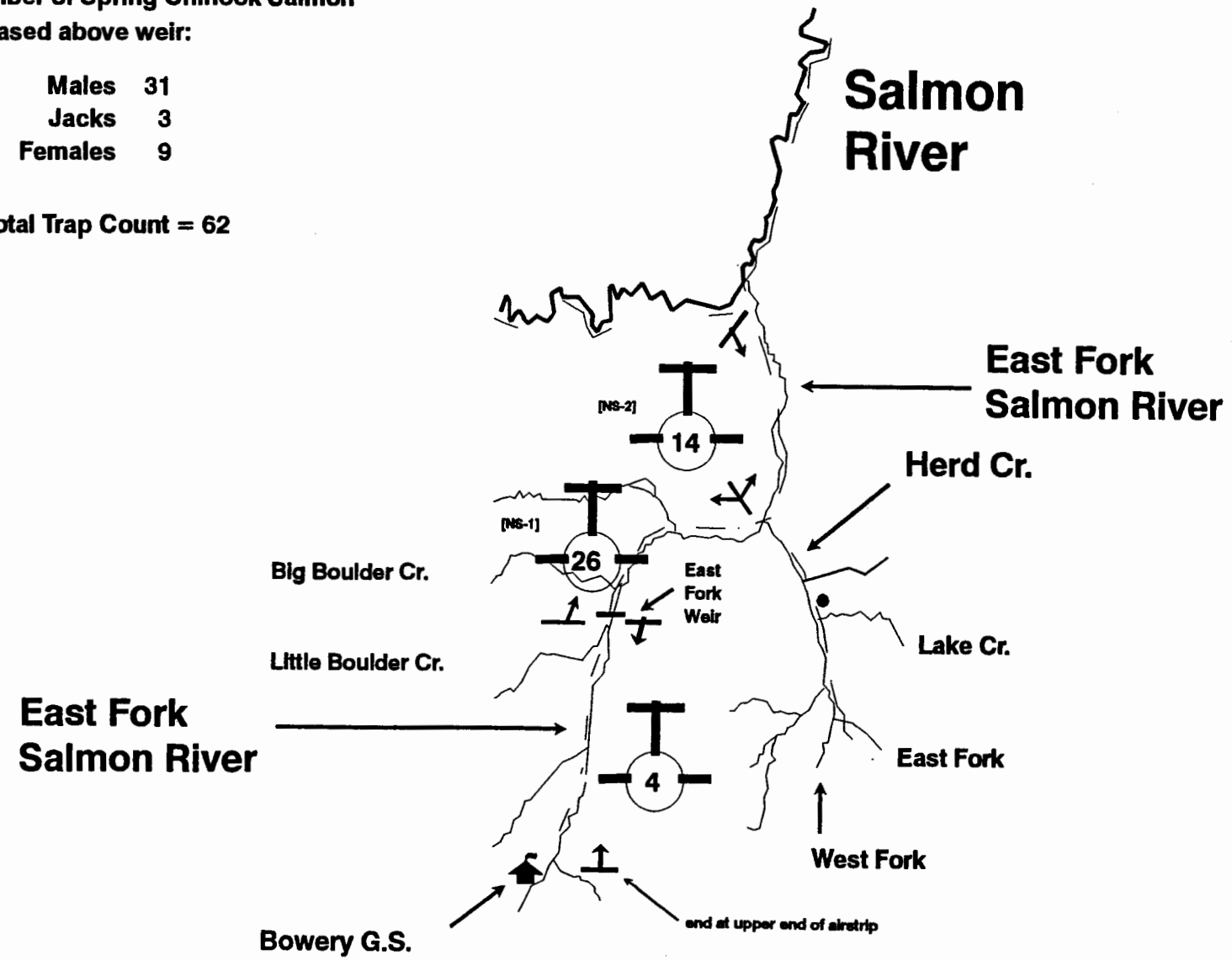
OBSERVER Lukens

REMARKS Helicopter

Number of Spring Chinook Salmon released above weir:

Males	31
Jacks	3
Females	9

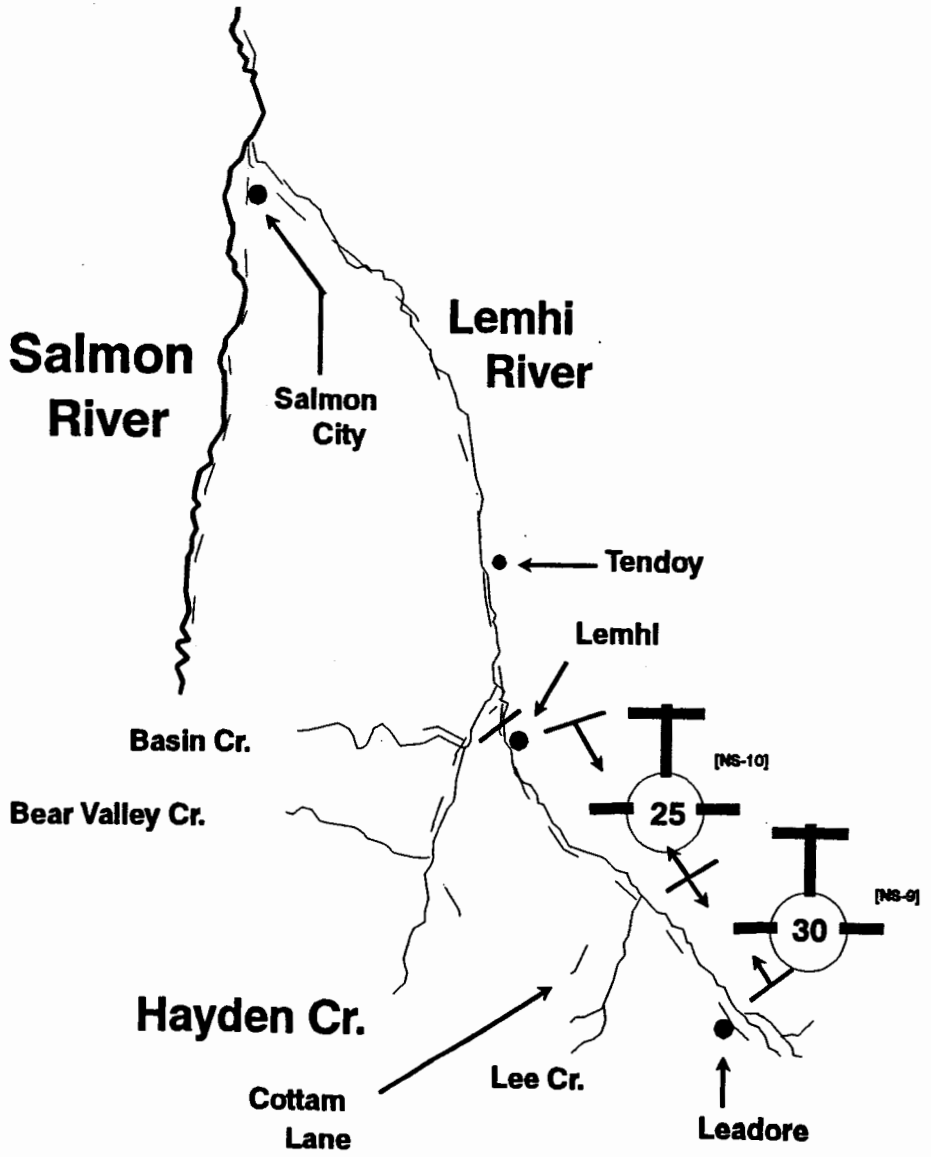
Total Trap Count = 62



MAP-12

DRAINAGE Salmon River
STREAM Lemhi River
OBSERVATION CONDITIONS
TIMING Early On Time Late

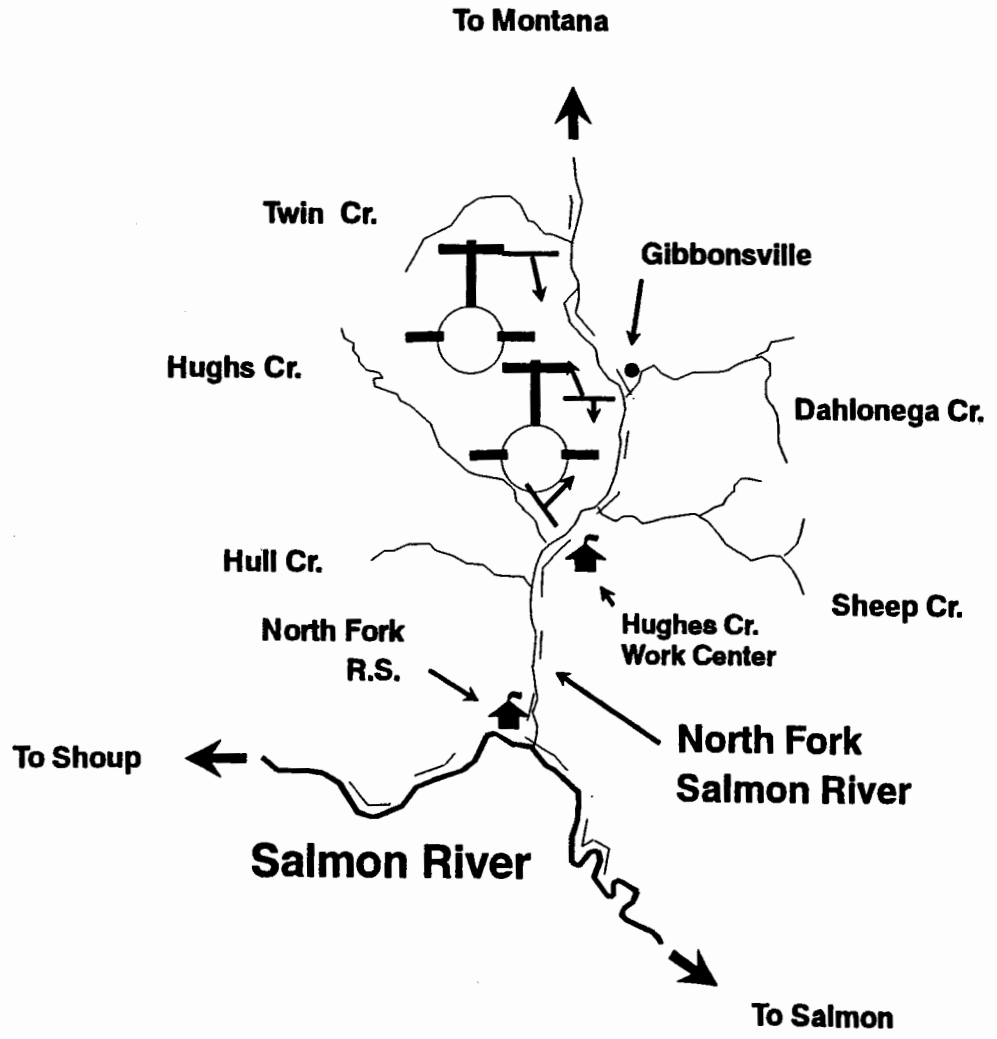
SURVEY DATE 9/5/91
MAP SCALE 0.40 cm = 1 mile
OBSERVER Lukens
REMARKS Helicopter



MAP-13

DRAINAGE Salmon River
STREAM North Fork Salmon River
OBSERVATION CONDITIONS
TIMING Early On Time Late

SURVEY DATE
MAP SCALE 0.6 cm = 1 mile
OBSERVER
REMARKS Dropped from survey 1987.



MAP-14

DRAINAGE Clearwater River

STREAM Crooked River & Newsome Creek

OBSERVATION CONDITIONS

TIMING Early On Time Late

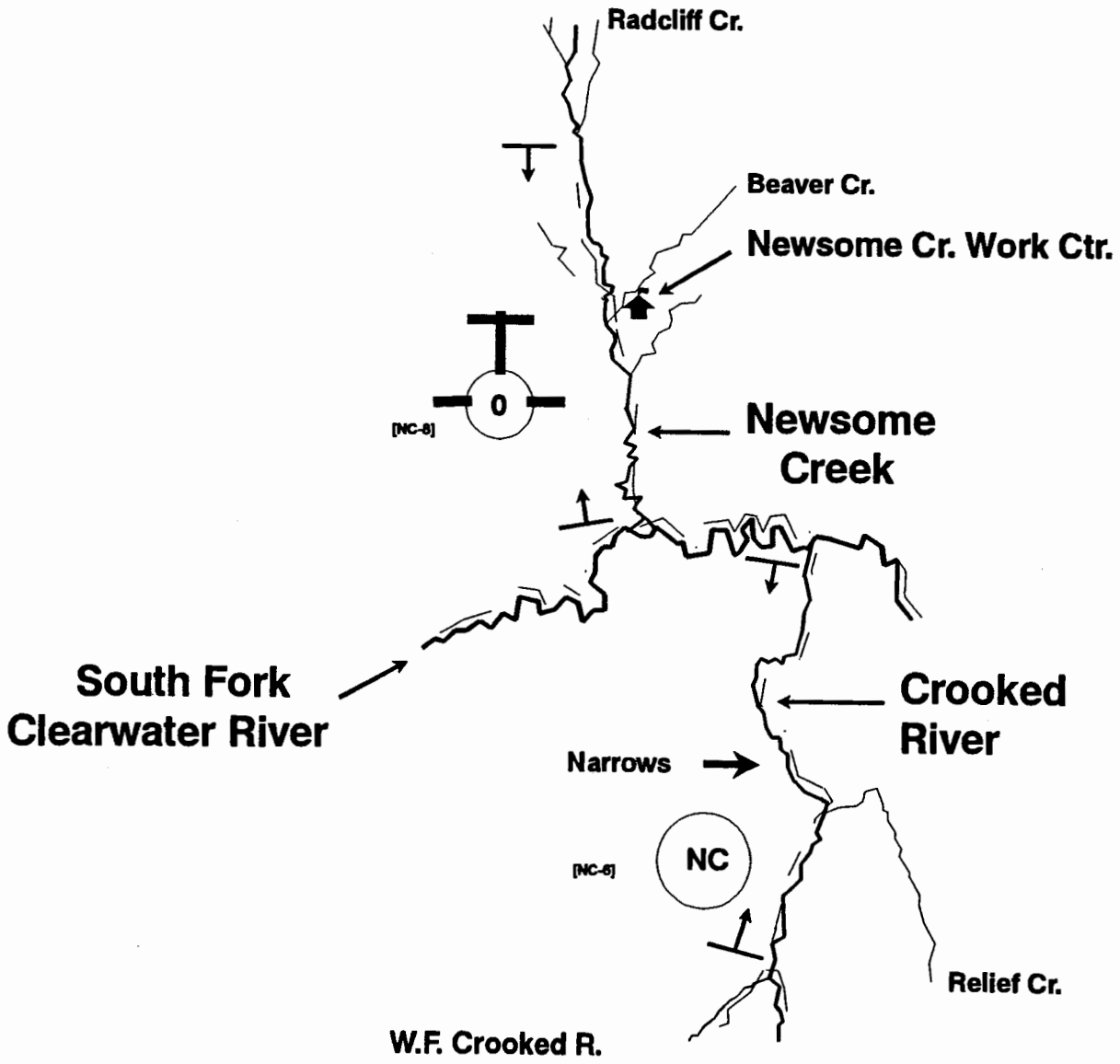
SURVEY DATE 9/11/91

MAP SCALE 0.85 cm = 1 mile

OBSERVER Schriever

REMARKS Ground - Helicopter

NC-6 : no count, only one female released above Crooked River weir.



MAP-15

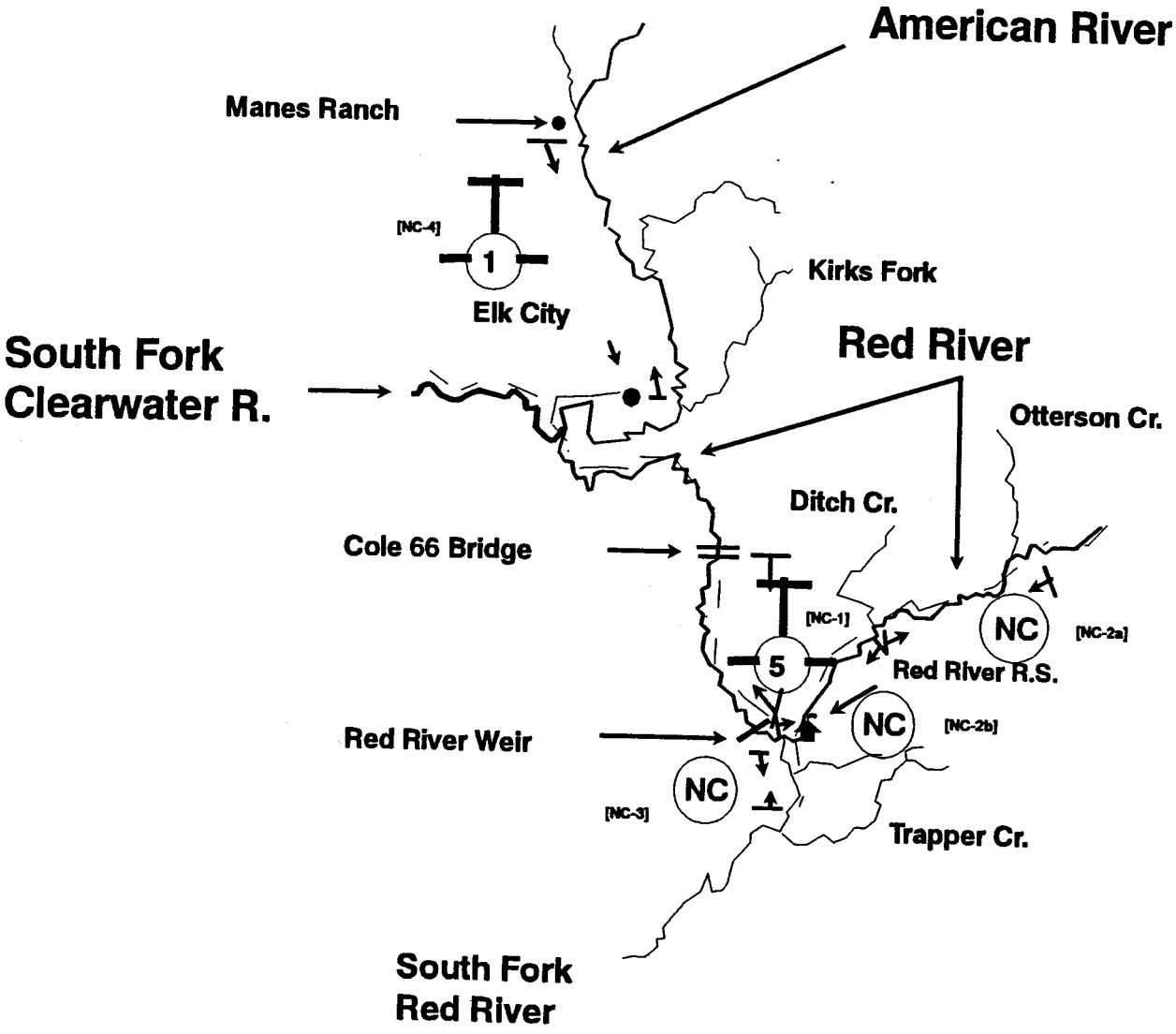
DRAINAGE Clearwater River
STREAM Red R. and American River
OBSERVATION CONDITIONS
TIMING Early On Time Late

SURVEY DATE 9/11/91
MAP SCALE 0.75 cm = 1 mile
OBSERVER Schriever
REMARKS Helicopter and Ground

Number of Chinnok Salmon released above weir:

Males 4
Jacks 0
Females 3

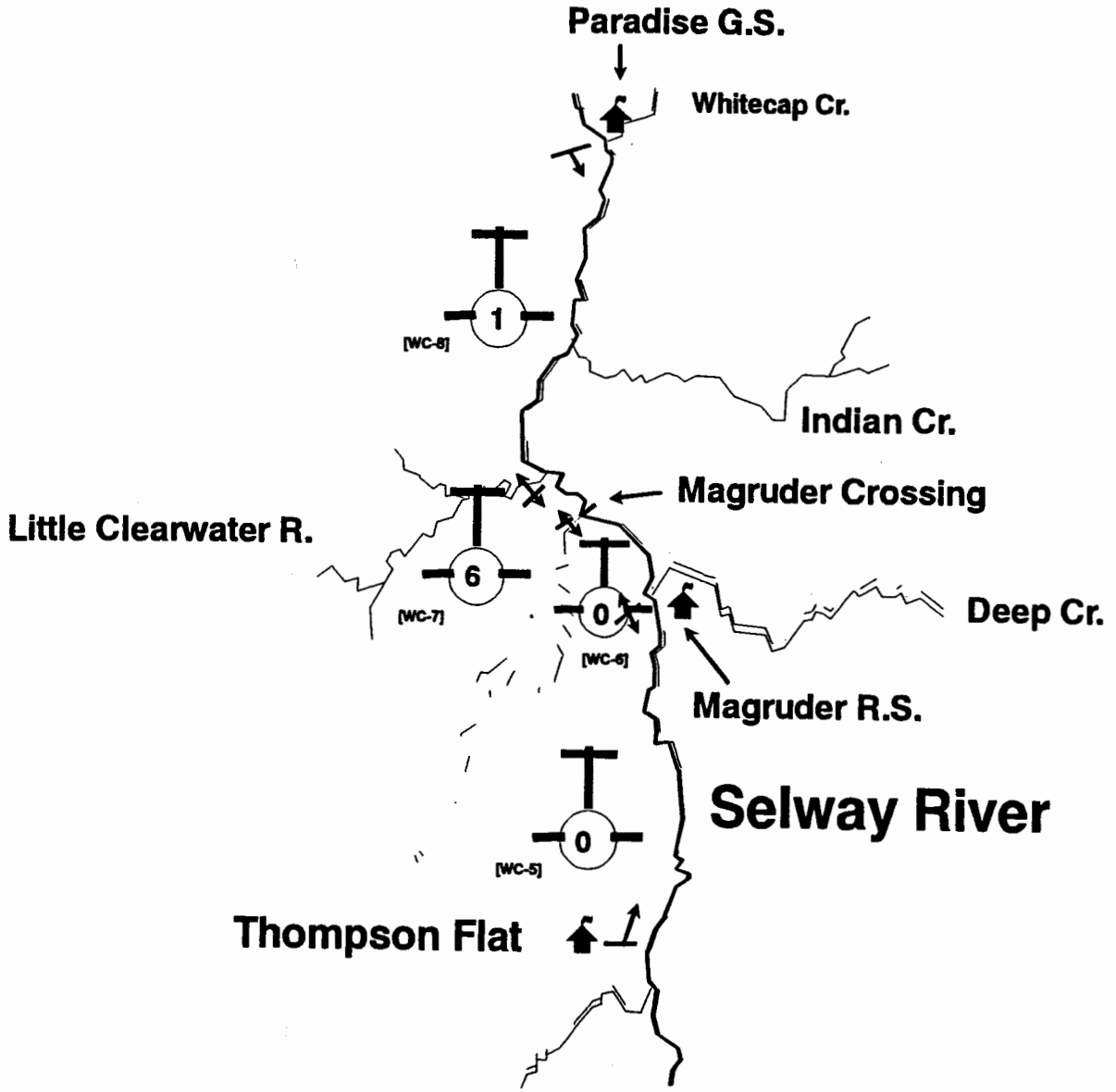
Total trap count = 18



MAP-16

DRAINAGE Clearwater River
STREAM Upper Selway River
OBSERVATION CONDITIONS
TIMING Early On Time Late

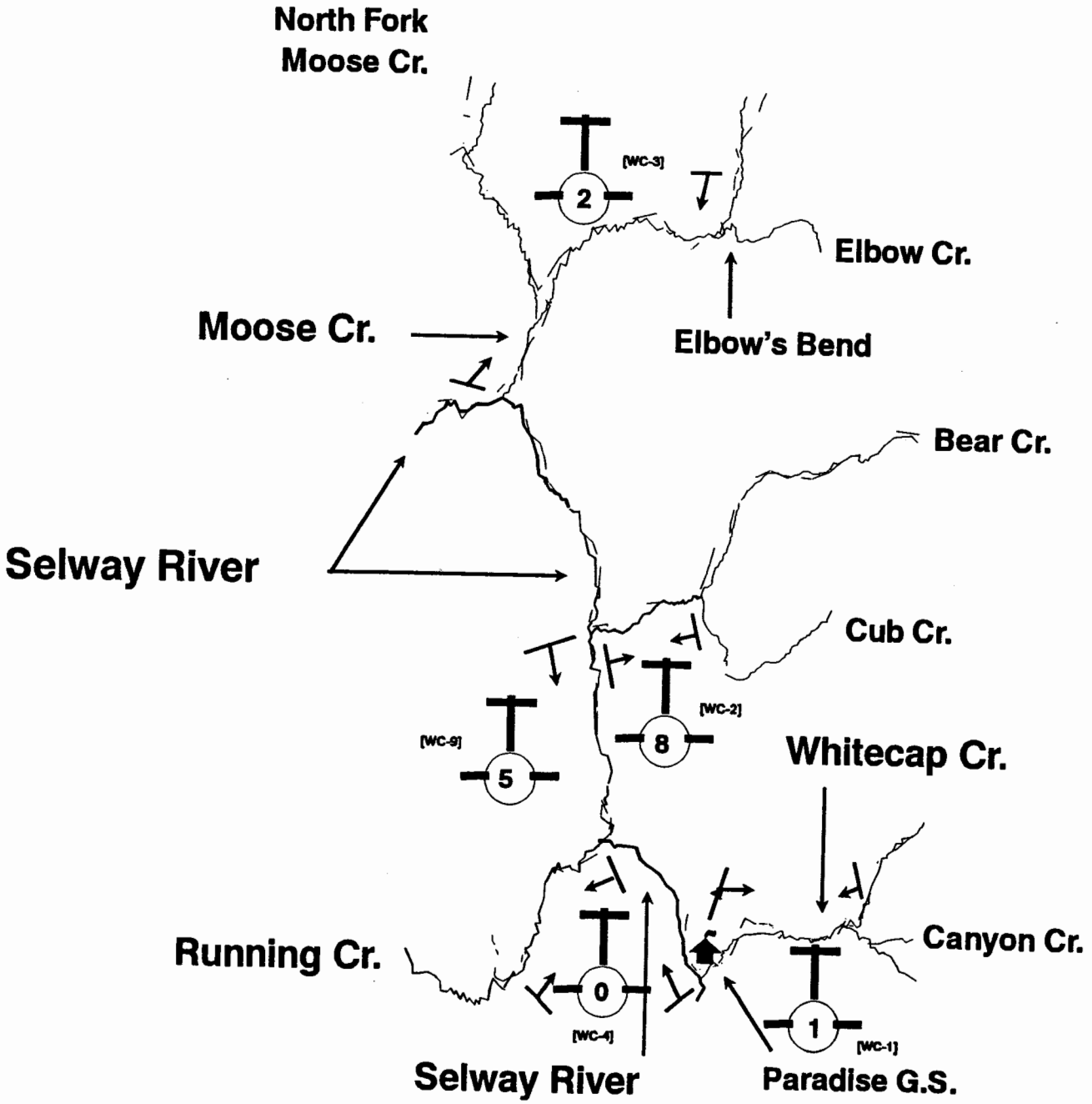
SURVEY DATE 9/12/91
MAP SCALE 0.85 cm = 1 mile
OBSERVER Schriever
REMARKS Helicopter and Ground



MAP-17

DRAINAGE Clearwater River
STREAM Selway River & tributaries
OBSERVATION CONDITIONS
TIMING Early On Time Late

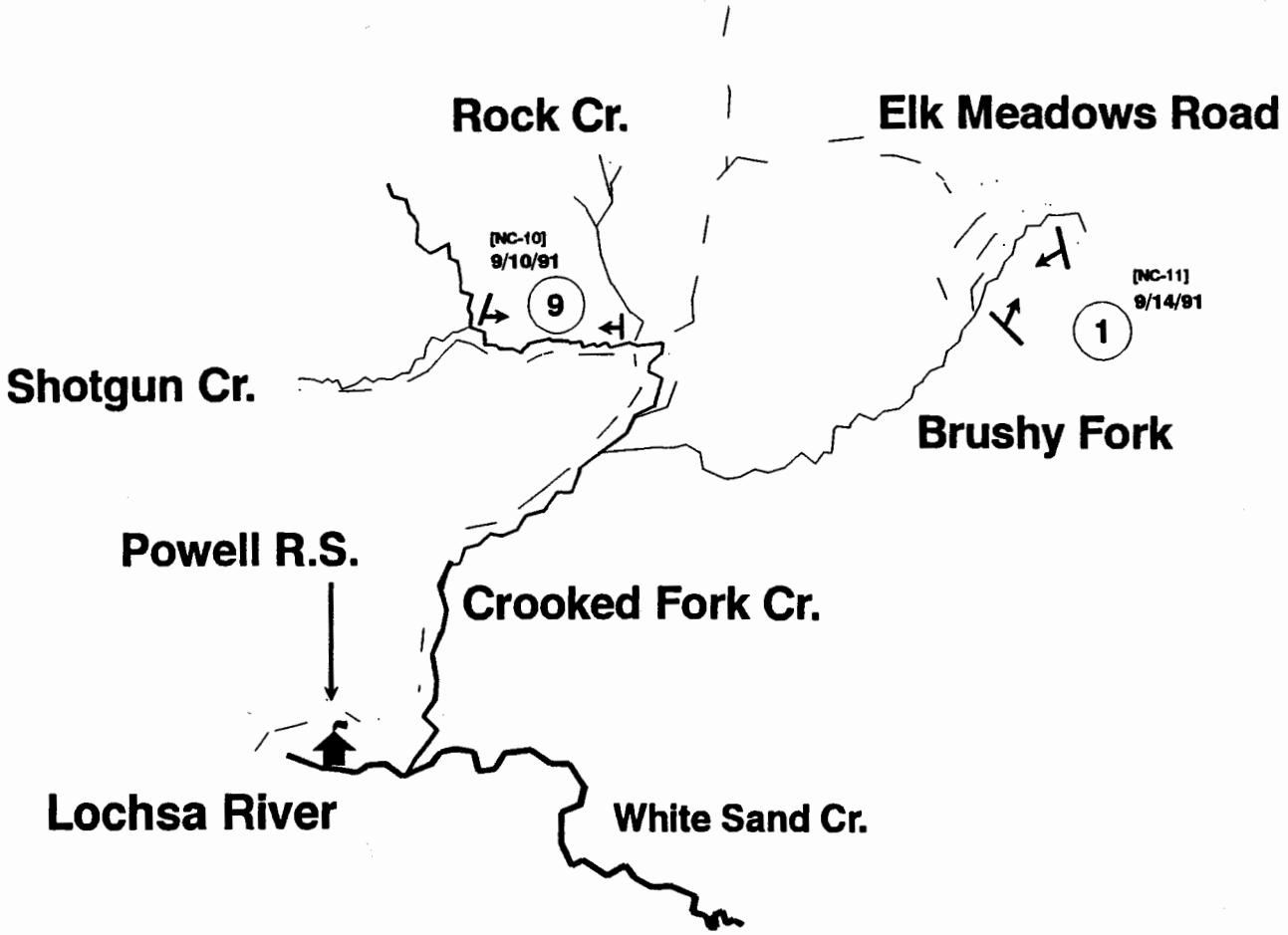
SURVEY DATE 9/12/91
MAP SCALE 0.65 cm = 1 mile
OBSERVER Schriever
REMARKS Helicopter



MAP-18

DRAINAGE Clearwater River
STREAM Crooked Fork & Brushy Fork
OBSERVATION CONDITIONS
TIMING Early On Time Late

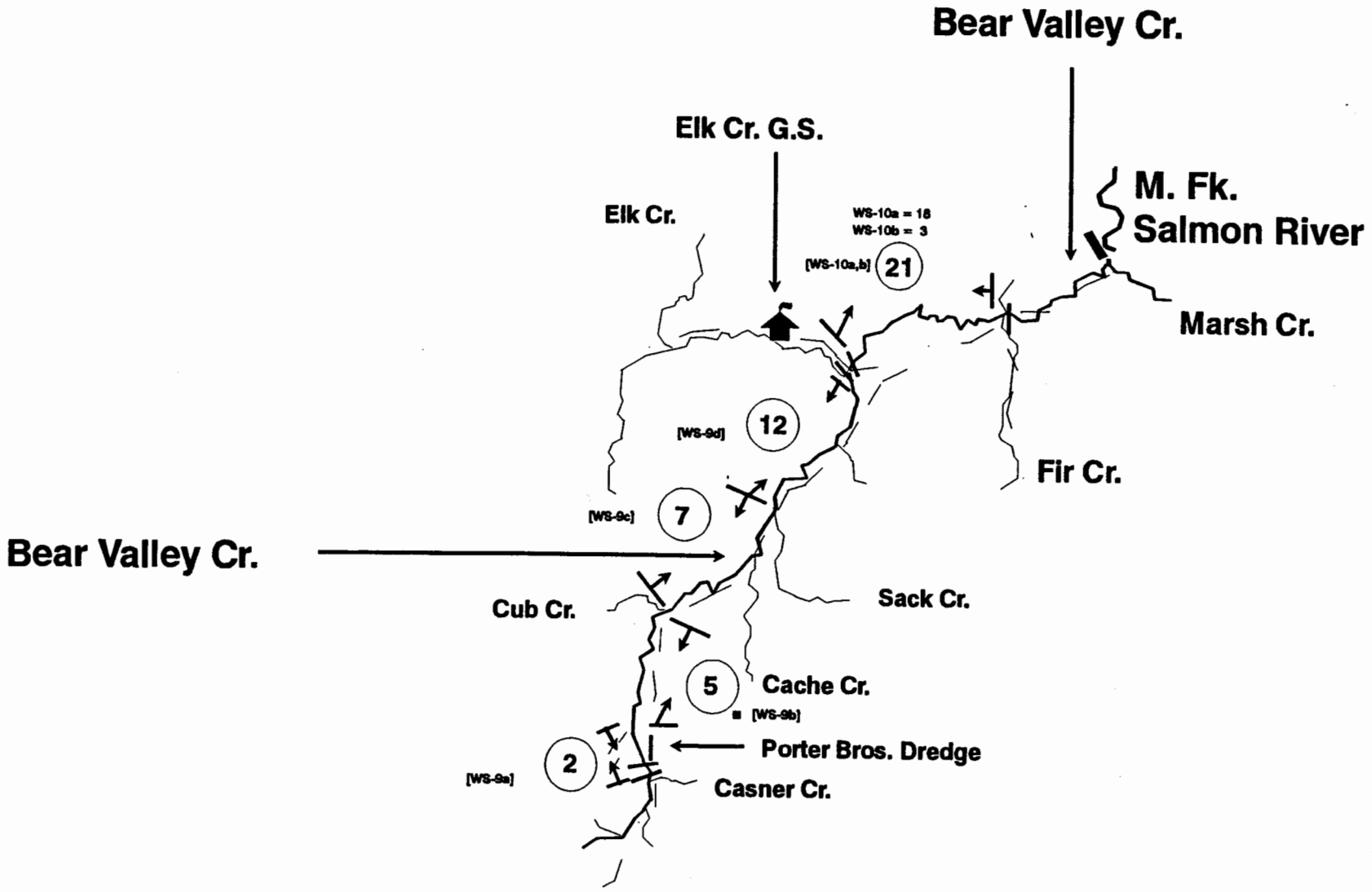
SURVEY DATE Indicated
MAP SCALE 0.95 cm = 1 mile
OBSERVER Schriever
REMARKS Ground



MAP-19

DRAINAGE Middle Fork Salmon River
STREAM Bear Valley Creek
OBSERVATION CONDITIONS
TIMING Early On Time Late

SURVEY DATE 8/26/91
MAP SCALE 0.90 cm = 1 mile
OBSERVER Holubetz
REMARKS Ground



F-21

MAP-20

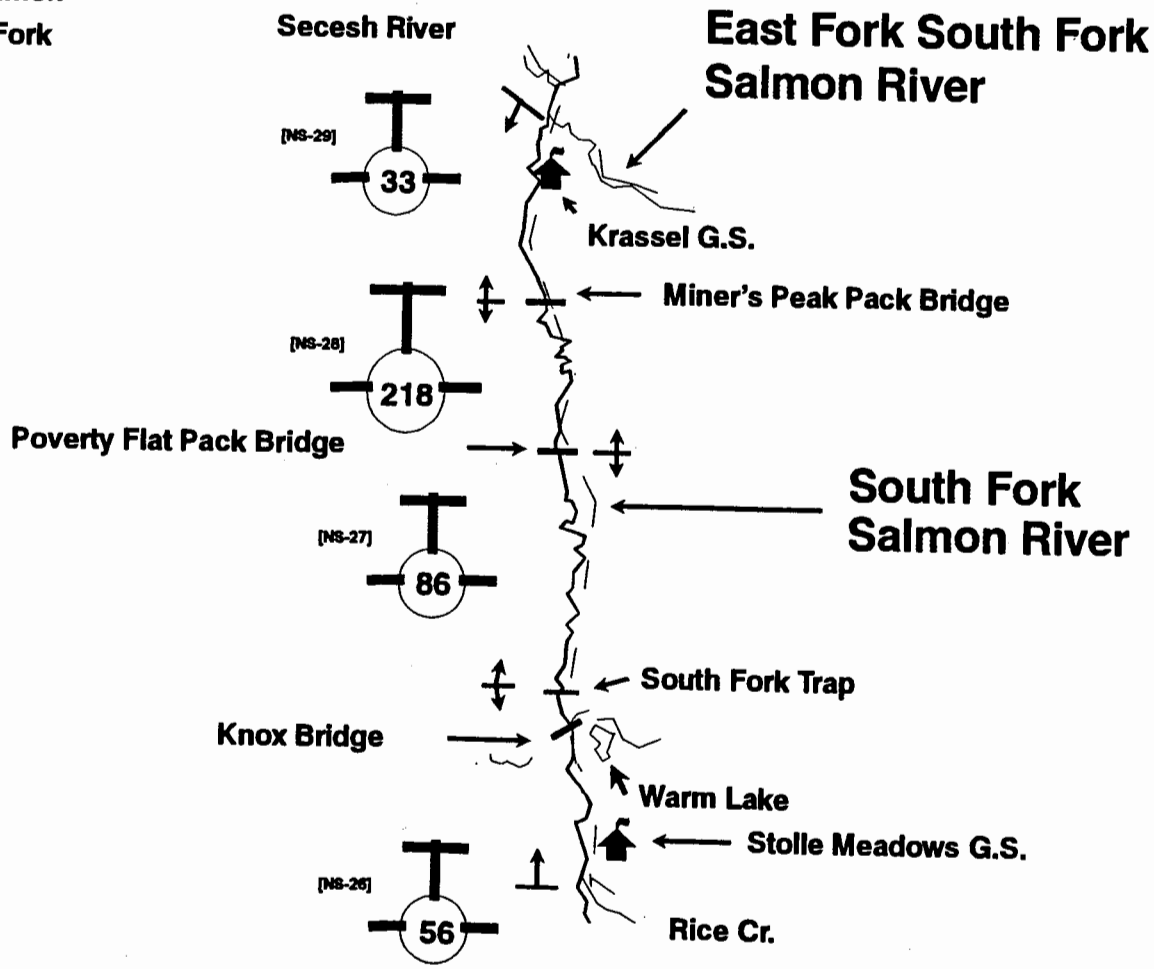
DRAINAGE Salmon River
STREAM South Fork Salmon River
OBSERVATION CONDITIONS
TIMING Early On Time Late

SURVEY DATE 9/9/91
MAP SCALE 0.40 cm = 1 mile
OBSERVER Anderson
REMARKS Helicopter

Number of Chinook Salmon released above South Fork Salmon Trap:

Males	44
Jacks	171
Females	73

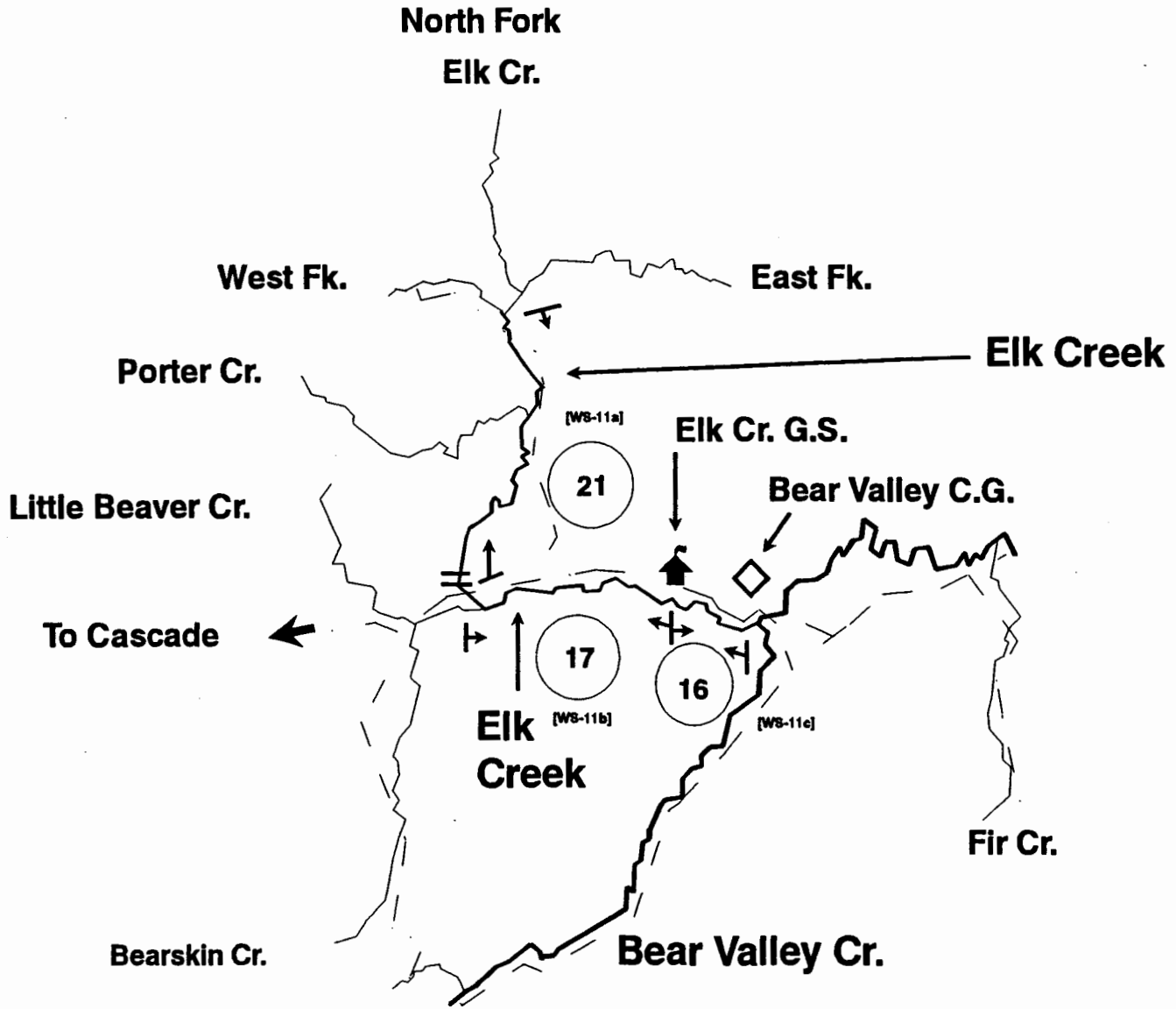
Total trap count = 1,212



MAP-21

DRAINAGE M.F. Salmon River
STREAM Elk Creek
OBSERVATION CONDITIONS
TIMING Early On Time Late

SURVEY DATE 8/26/91
MAP SCALE 1.3 cm = 1 mile
OBSERVER Holubetz
REMARKS Ground



MAP-22

DRAINAGE Salmon River

STREAM Salmon R. & Tributaries

OBSERVATION CONDITIONS

TIMING Early On Time Late

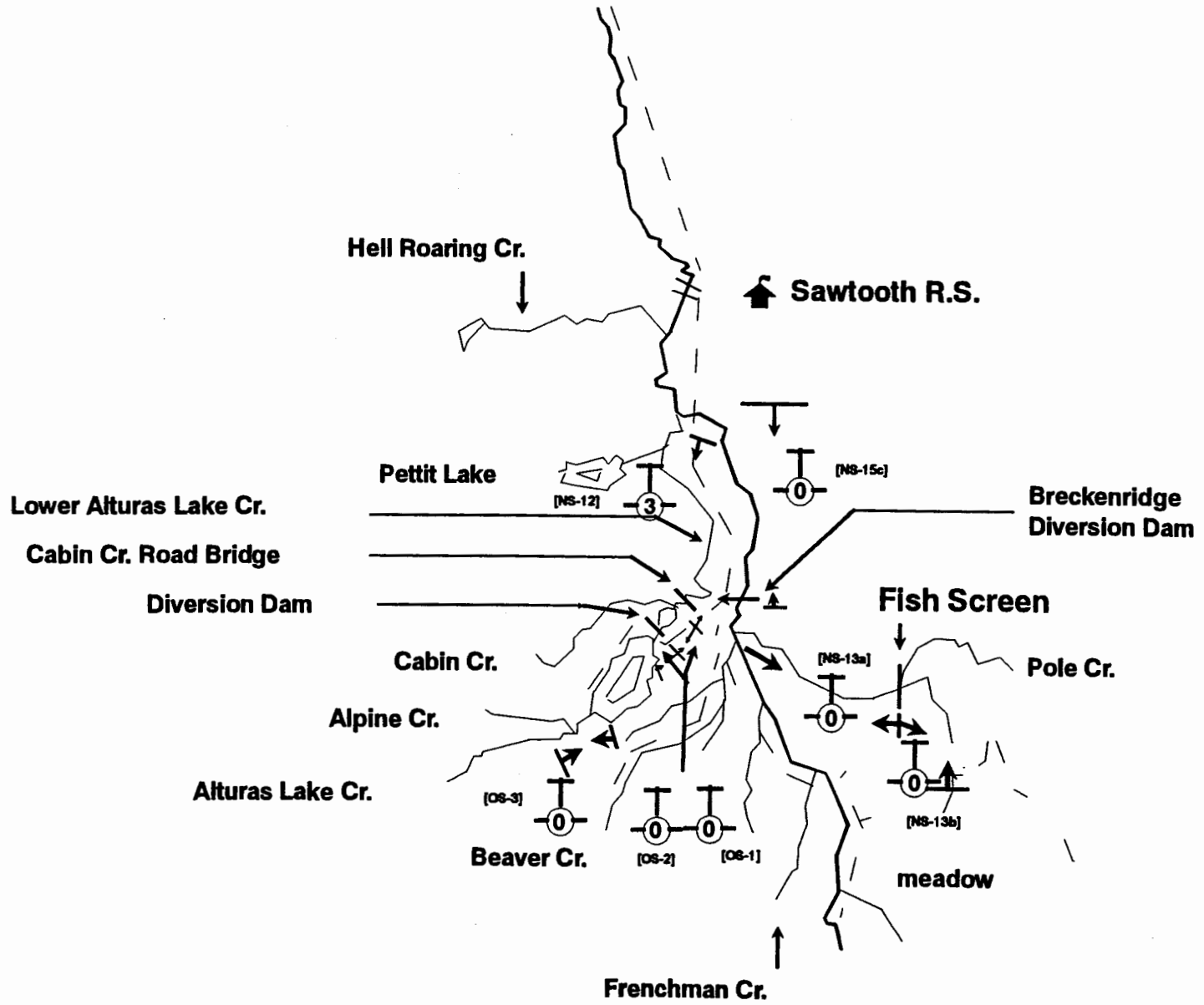
SURVEY DATE 9/5/91

MAP SCALE 0.78 cm = 1 mile

OBSERVER Lukens

REMARKS Helicopter

Salmon River



Appendix G. Maps showing 1992 chinook salmon redd count transects and numbers of redds counted.

LEGEND

Transect Boundaries 

Ground Redd Counts 

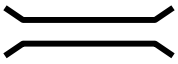
Helicopter Redd Counts 

Road

Trail

Forest Service Station 

Campground 

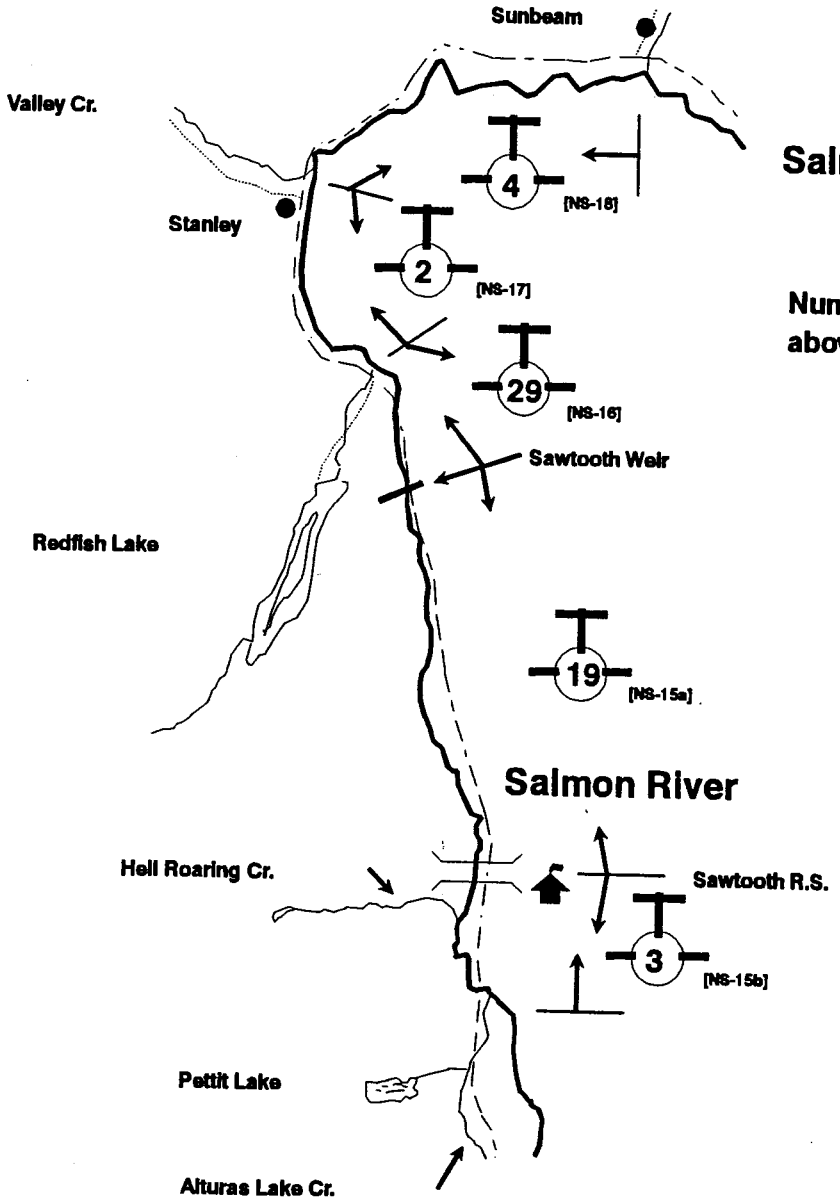
Road or Highway Bridge 

Pack Bridge 

Transect Codes (See Appendix B) [WS-##], [NS-##], [WC-##], etc.

DRAINAGE Salmon River
STREAM Salmon River
OBSERVATION CONDITIONS
TIMING Early On Time Late

SURVEY DATE 9/1/92
MAP SCALE 0.78 cm = 1 mile
OBSERVER Lukens, Liter
REMARKS Helicopter



Salmon River

Number of Spring Chinook released above Sawtooth weir:

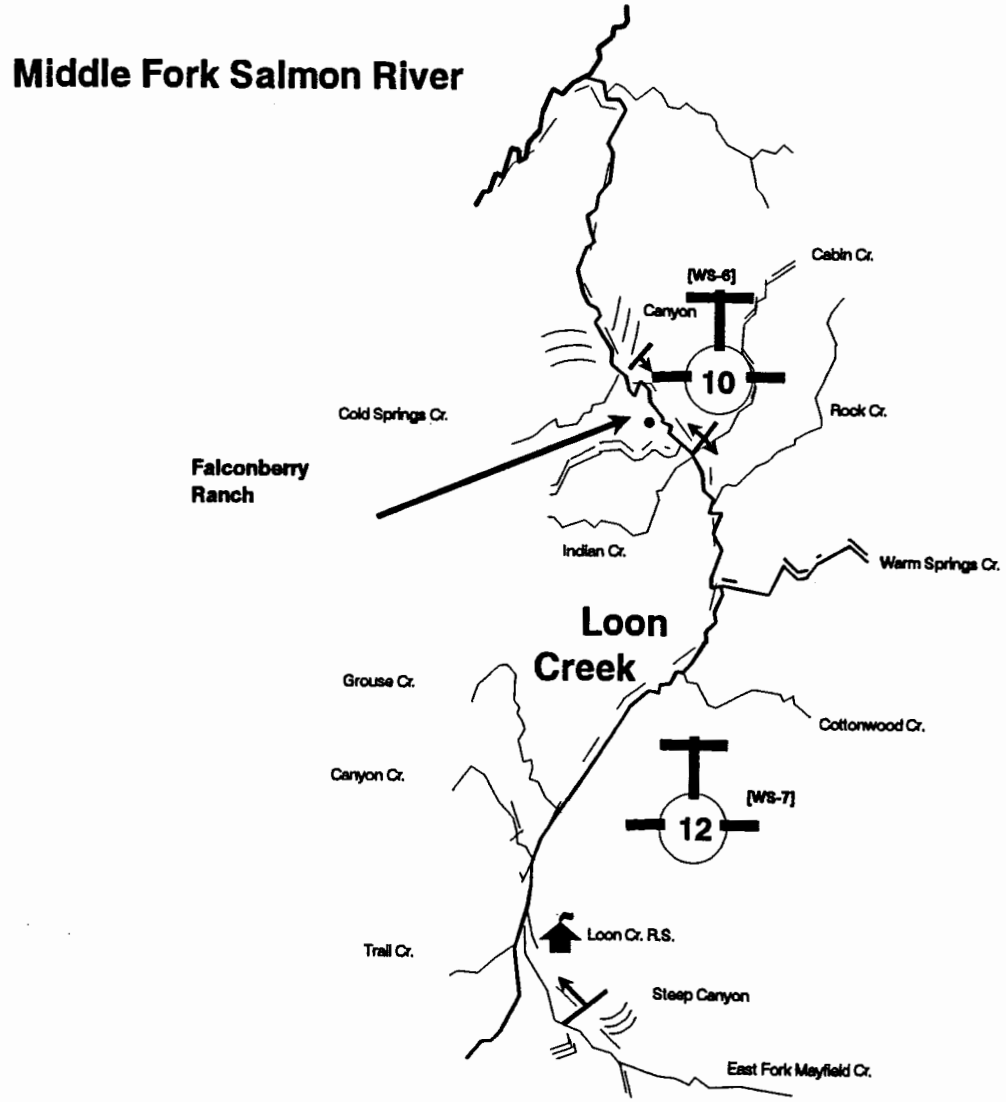
Males	77
Jacks	12
Females	56

Total trap count = 387

MAP-01

DRAINAGE Middle Fork Salmon River
STREAM Loon Creek
OBSERVATION CONDITIONS _____
TIMING Early On Time Late

SURVEY DATE 9/1/92
MAP SCALE 0.85 cm = 1 mile
OBSERVER Lukens, Liter
REMARKS Helicopter

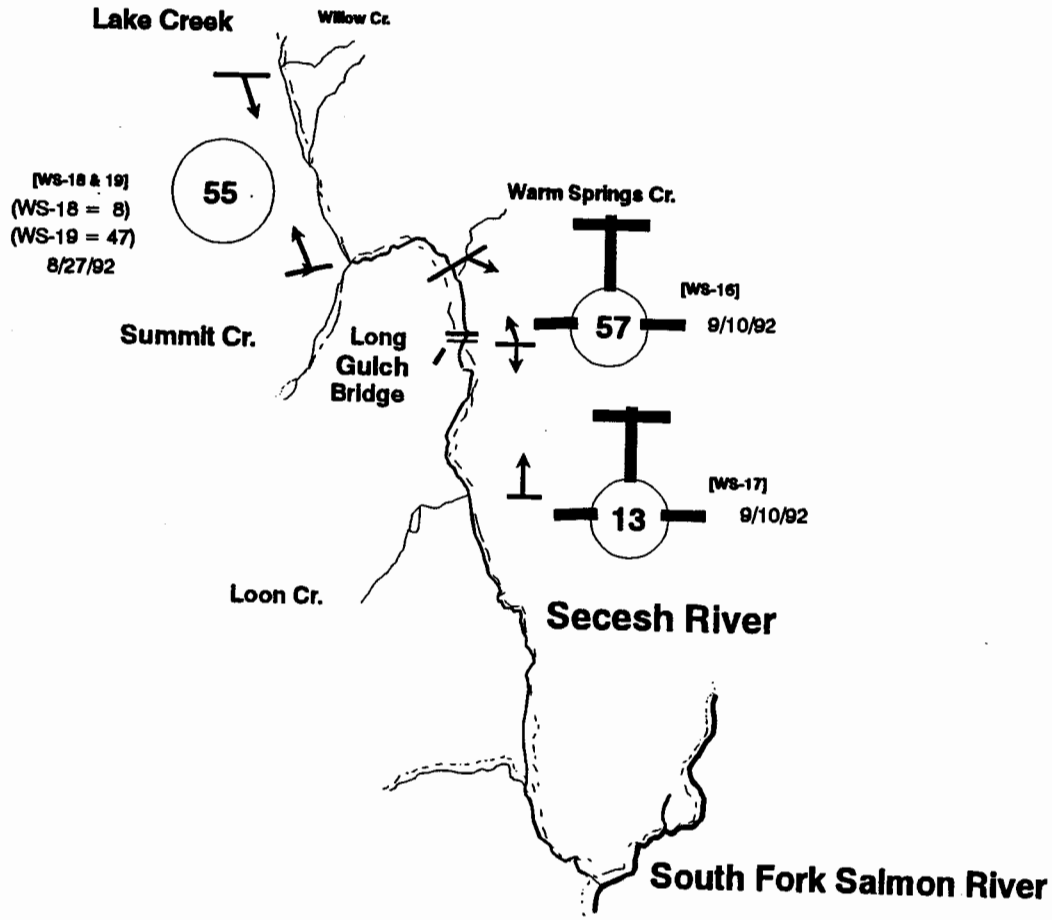


MAP-02

fig3

DRAINAGE South Fork Salmon River
STREAM Lake Creek - Secesh River
OBSERVATION CONDITIONS
TIMING Early On Time Late

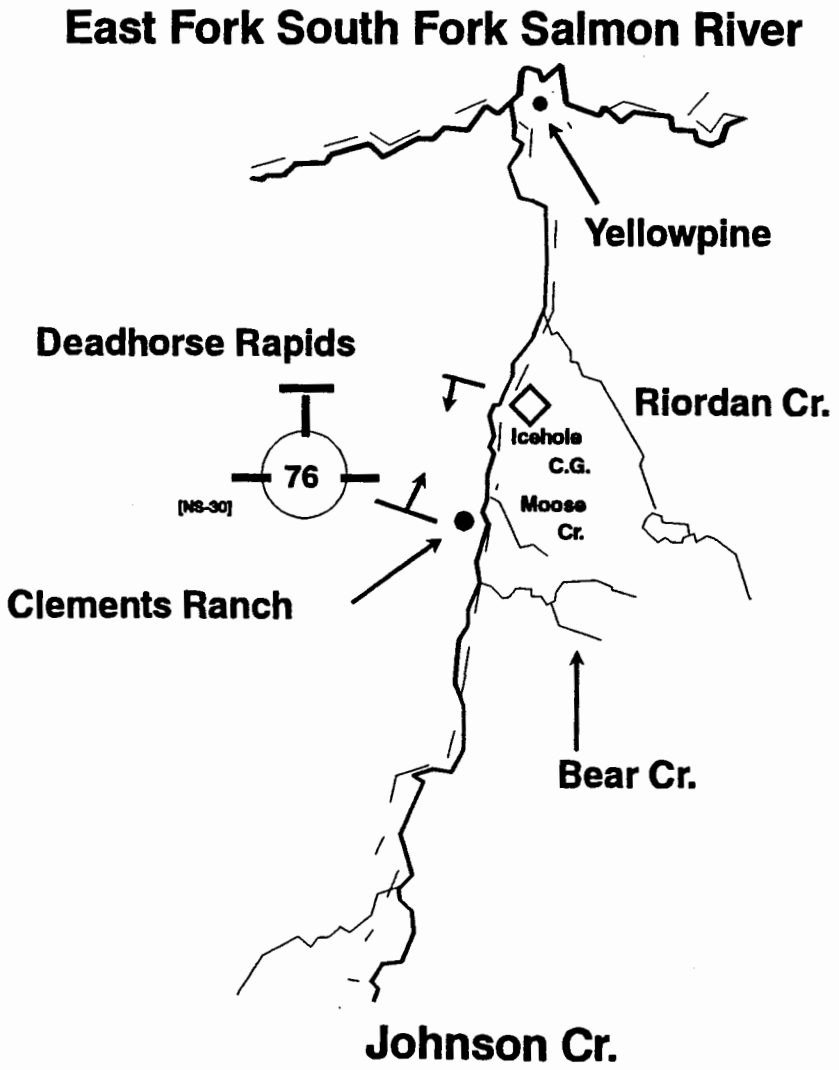
SURVEY DATE Indicated
MAP SCALE 0.65 cm = 1 mile
OBSERVER Anderson
REMARKS Ground - Helicopter



MAP-03

DRAINAGE E.F. of South Fork Salmon
STREAM Johnson Creek
OBSERVATION CONDITIONS
TIMING Early On Time Late

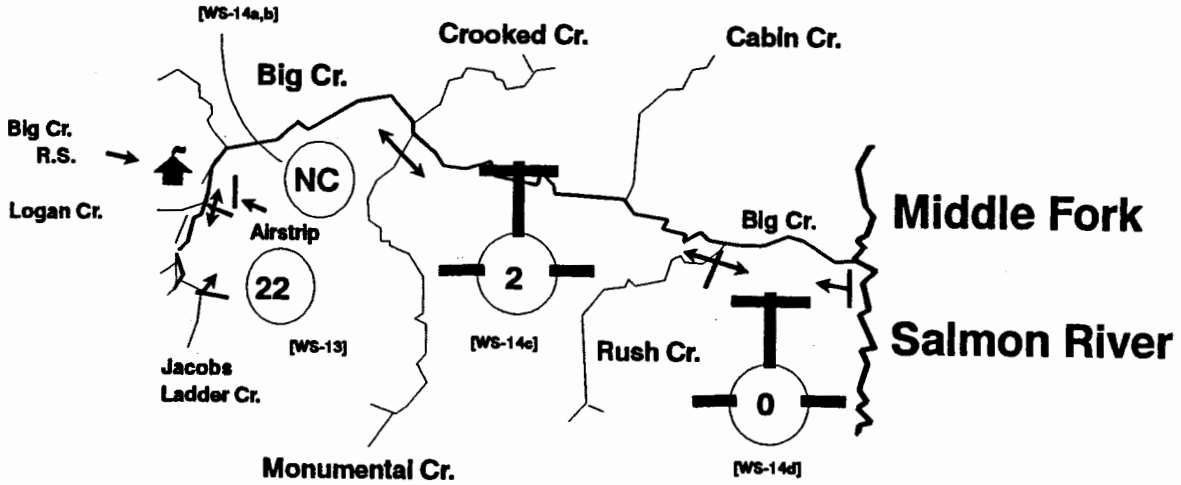
SURVEY DATE 8/31/92
MAP SCALE 0.95 cm = 1 mile
OBSERVER Anderson
REMARKS Ground



MAP-04

DRAINAGE Middle Fork Salmon River
STREAM Big Creek
OBSERVATION CONDITIONS _____
TIMING Early On Time Late

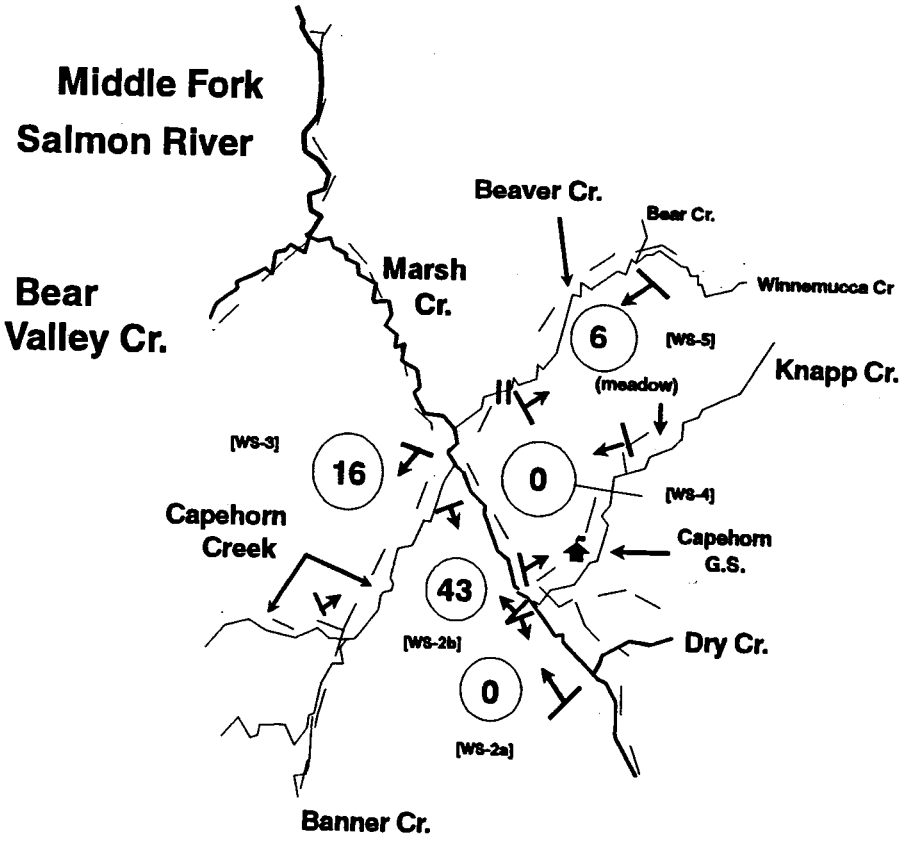
SURVEY DATE WS-13 = 9/2/92; WS-14 = 9/1/92
MAP SCALE 0.45 cm = 1 mile
OBSERVER WS-13 = Anderson; WS-14 = Lukens, Liter
REMARKS WS-13 = Ground;l WS-14 = Helicopter



MAP-05

DRAINAGE Middle Fork Salmon River
STREAM Marsh,Beaver,Knapp,and Capehorn Cks.
OBSERVATION CONDITIONS Good
TIMING Early On Time Late

SURVEY DATE 8/19/92
MAP SCALE 1.15 cm = 1 mile
OBSERVER IDFG
REMARKS Ground



MAP-06

DRAINAGE Middle Fork Salmon River

STREAM Sulphur Creek

OBSERVATION CONDITIONS

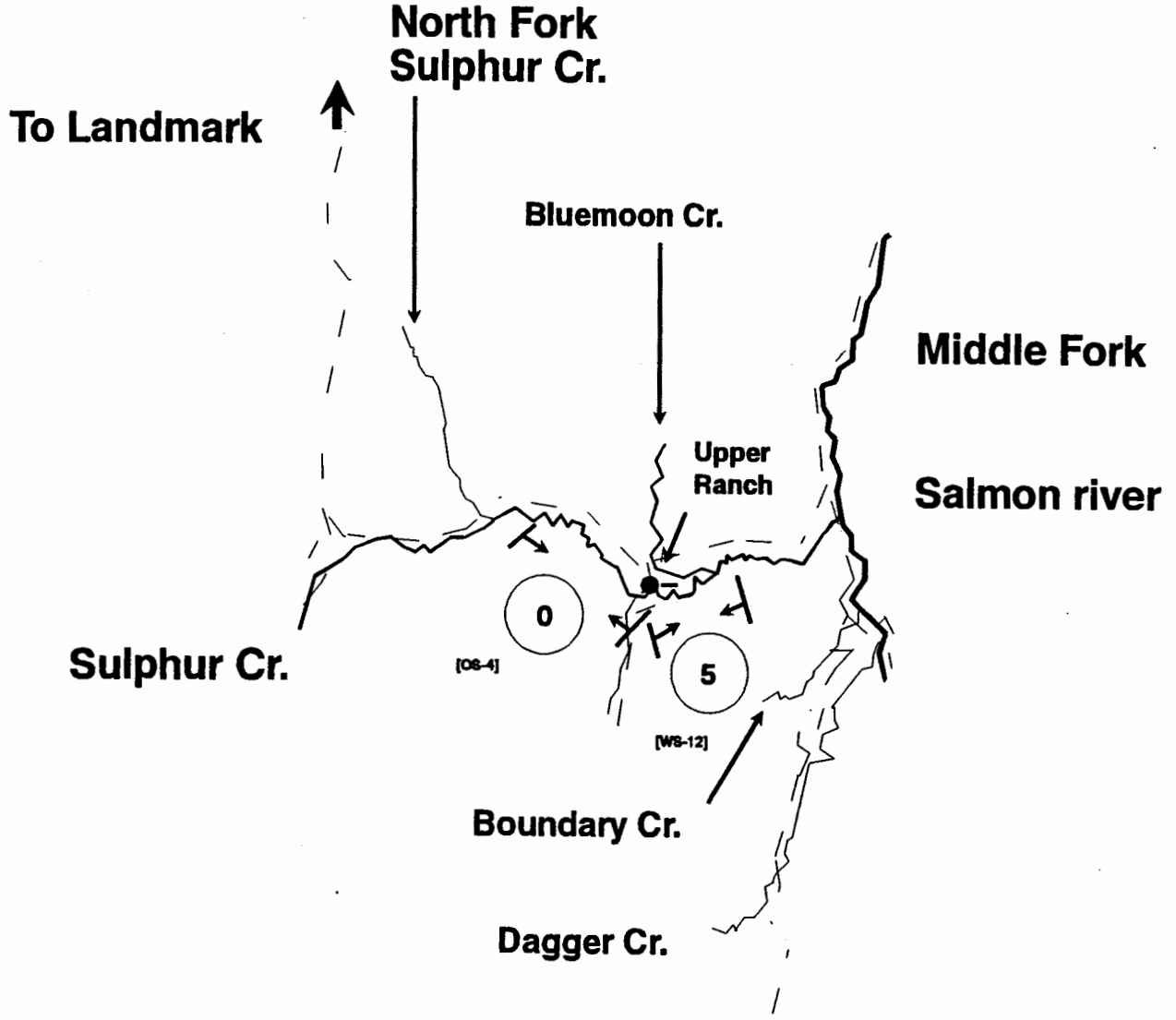
TIMING Early On Time Late

SURVEY DATE 8/21/92

MAP SCALE 1.3 cm = 1 mile

OBSERVER Holubetz

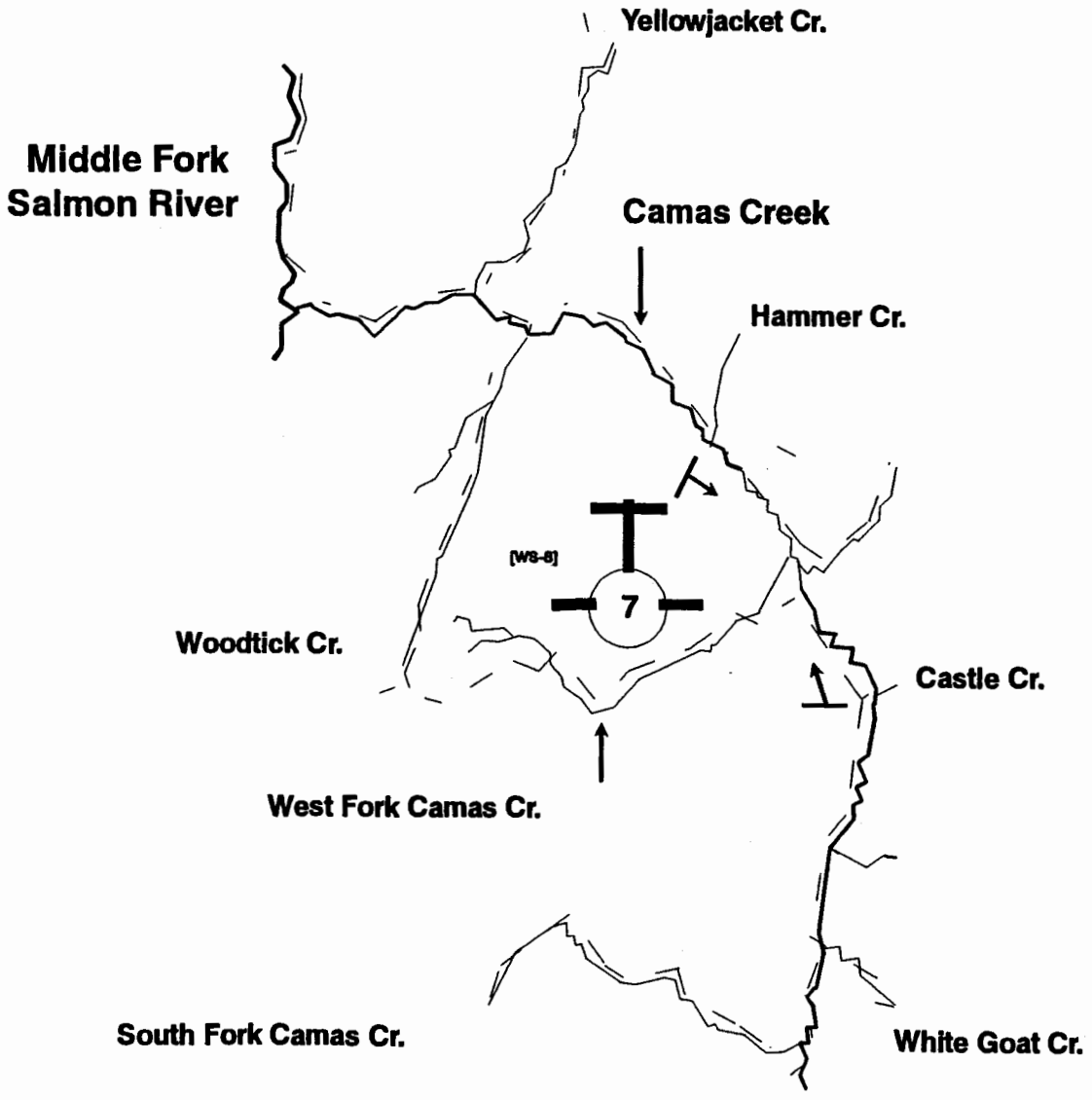
REMARKS Ground



MAP-07

DRAINAGE Middle Fork Salmon River
STREAM Camas Creek
OBSERVATION CONDITIONS
TIMING Early On Time Late

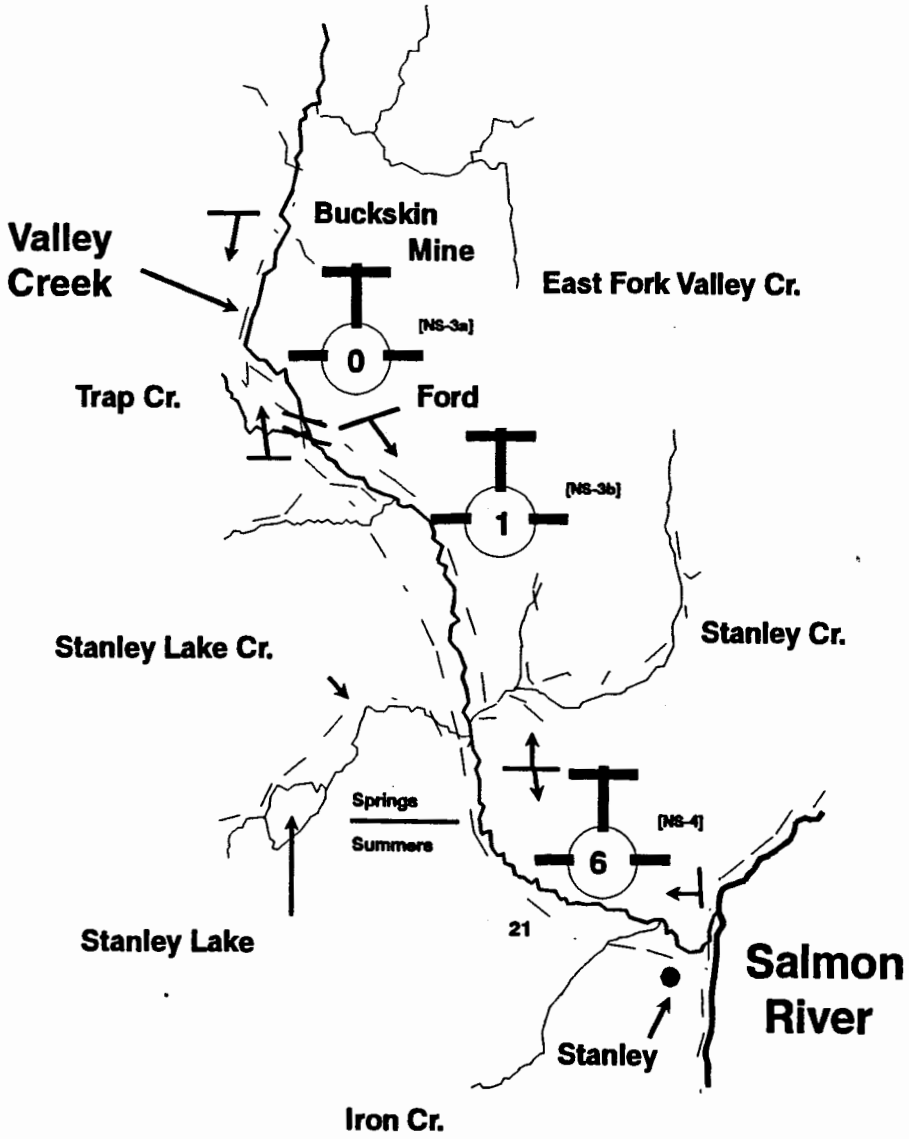
SURVEY DATE 9/1/92
MAP SCALE 1.10 cm = 1 mile
OBSERVER Lukens, Liter
REMARKS Helicopter



MAP-08

DRAINAGE Salmon River
STREAM Valley Creek
OBSERVATION CONDITIONS
TIMING Early On Time Late

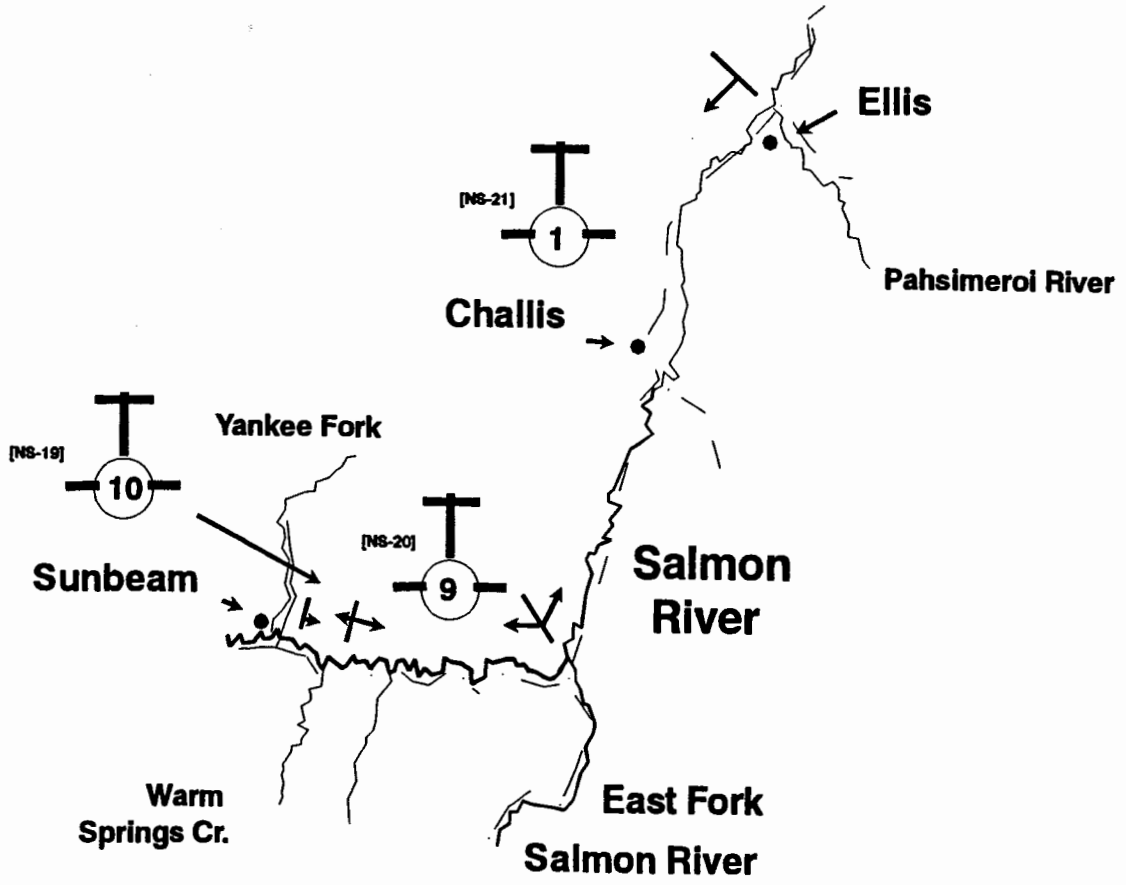
SURVEY DATE 9/1/92
MAP SCALE 1.6 cm = 1 mile
OBSERVER Lukens, Liter
REMARKS Helicopter



MAP-09

DRAINAGE Salmon River
STREAM Salmon River
OBSERVATION CONDITIONS
TIMING Early On Time Late

SURVEY DATE 9/1/92
MAP SCALE 0.35 cm = 1 mile
OBSERVER Lukens, Liter
REMARKS Helicopter



DRAINAGE Salmon River

STREAM Yankee Fork

OBSERVATION CONDITIONS

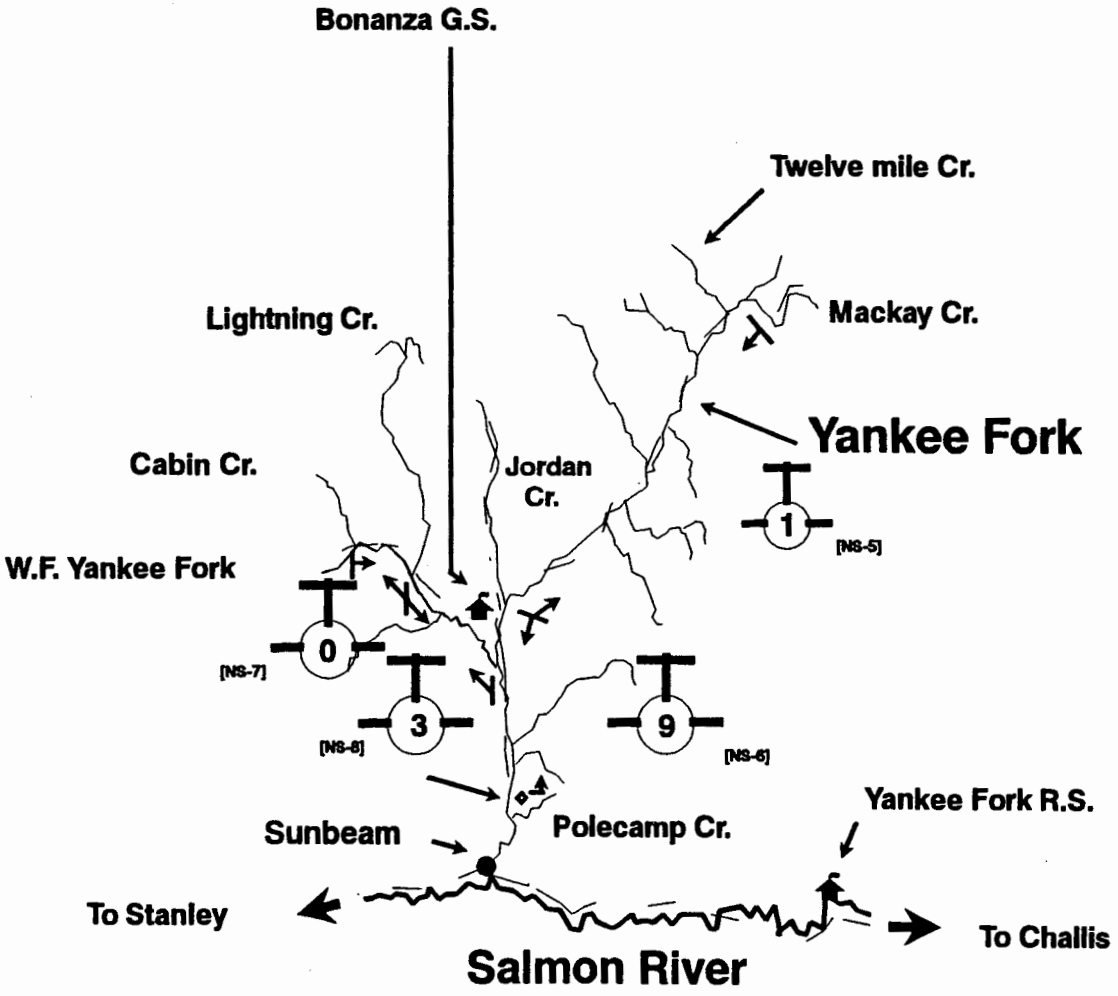
TIMING Early On Time Late

SURVEY DATE 9/1/92

MAP SCALE 0.70 cm = 1 mile

OBSERVER Lukens, Liter

REMARKS Helicopter



MAP-11

DRAINAGE Salmon River

STREAM East Fork Salmon River

OBSERVATION CONDITIONS

TIMING Early On Time Late

SURVEY DATE 9/1/92

MAP SCALE 0.6 cm 1 = mile

OBSERVER Lukens, Liter

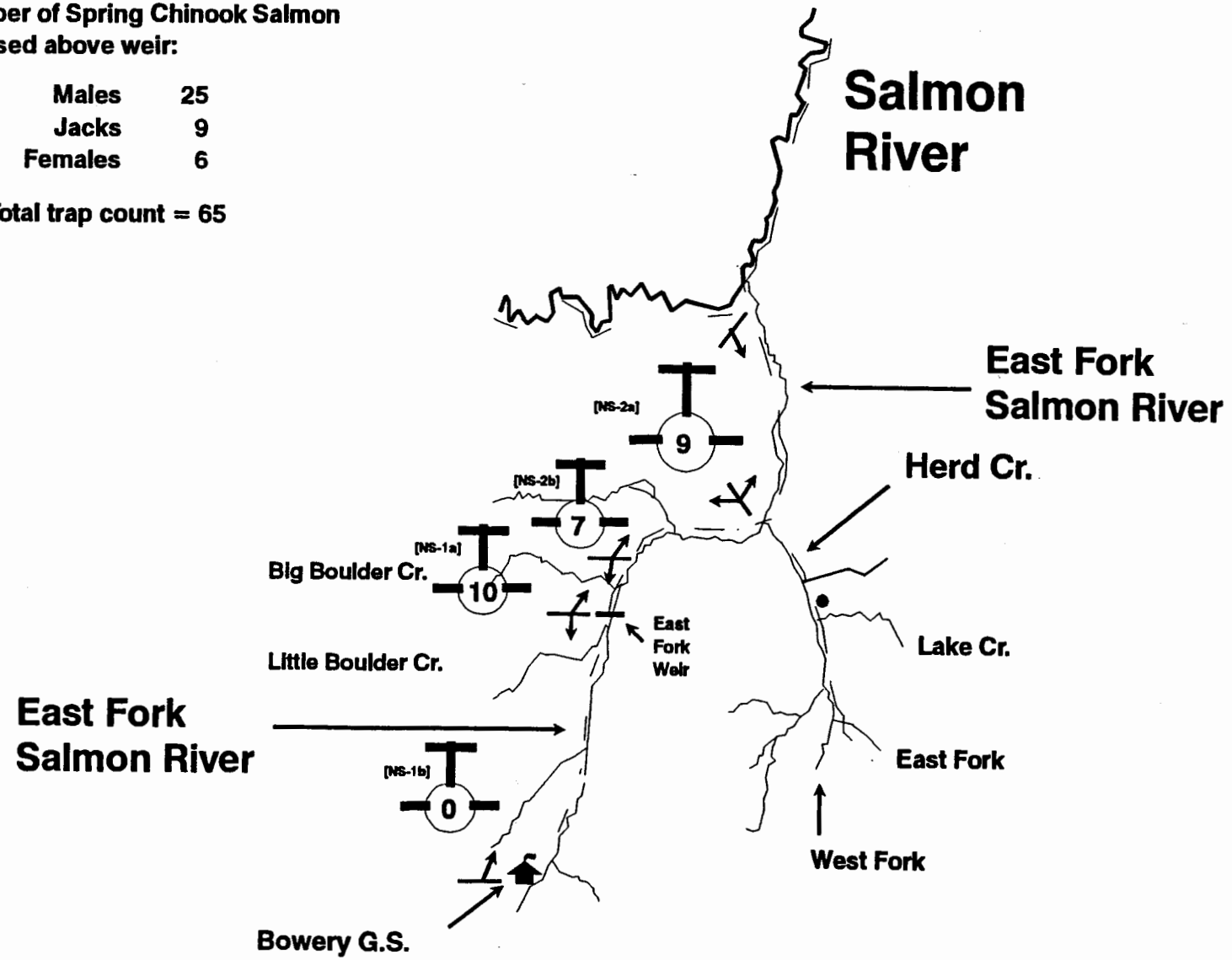
REMARKS Helicopter

Transect NS-2b ends 3.5 miles below Big Boulder Creek.

Number of Spring Chinook Salmon released above weir:

Males	25
Jacks	9
Females	6

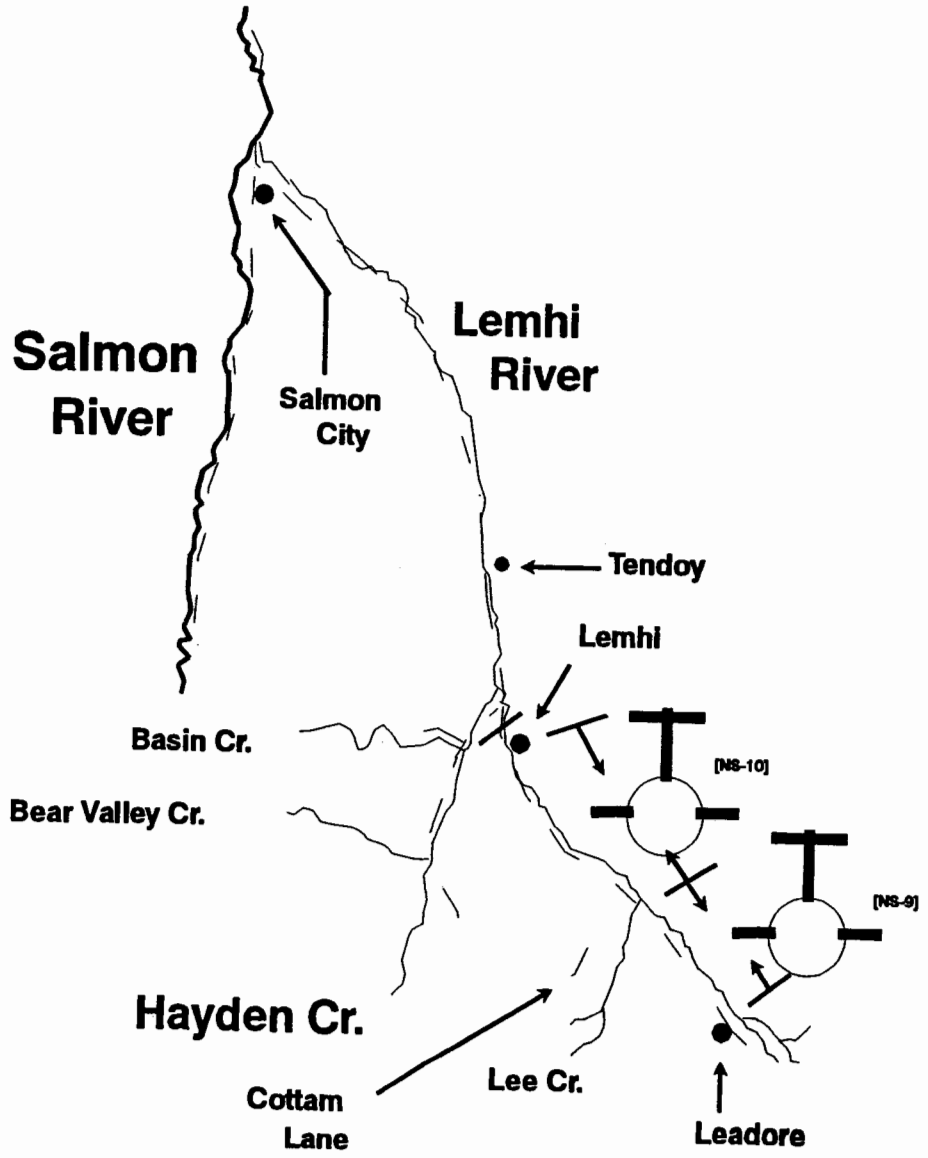
Total trap count = 65



MAP-12

DRAINAGE Salmon River
STREAM Lemhi River
OBSERVATION CONDITIONS
TIMING Early On Time Late

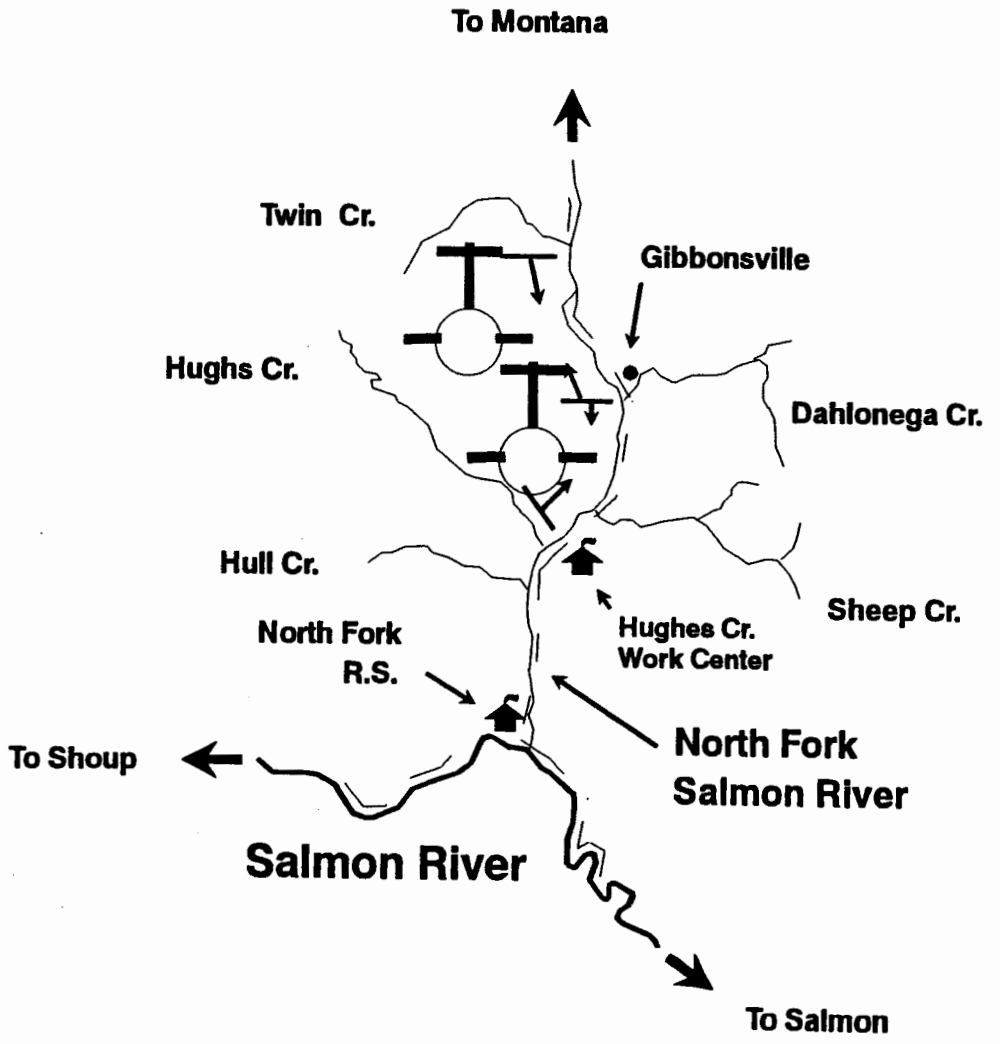
SURVEY DATE
MAP SCALE 0.40 cm = 1 mile
OBSERVER
REMARKS Helicopter



MAP-13

DRAINAGE Salmon River
STREAM North Fork Salmon River
OBSERVATION CONDITIONS
TIMING Early On Time Late

SURVEY DATE
MAP SCALE 0.6 cm = 1 mile
OBSERVER
REMARKS Dropped from survey 1987.

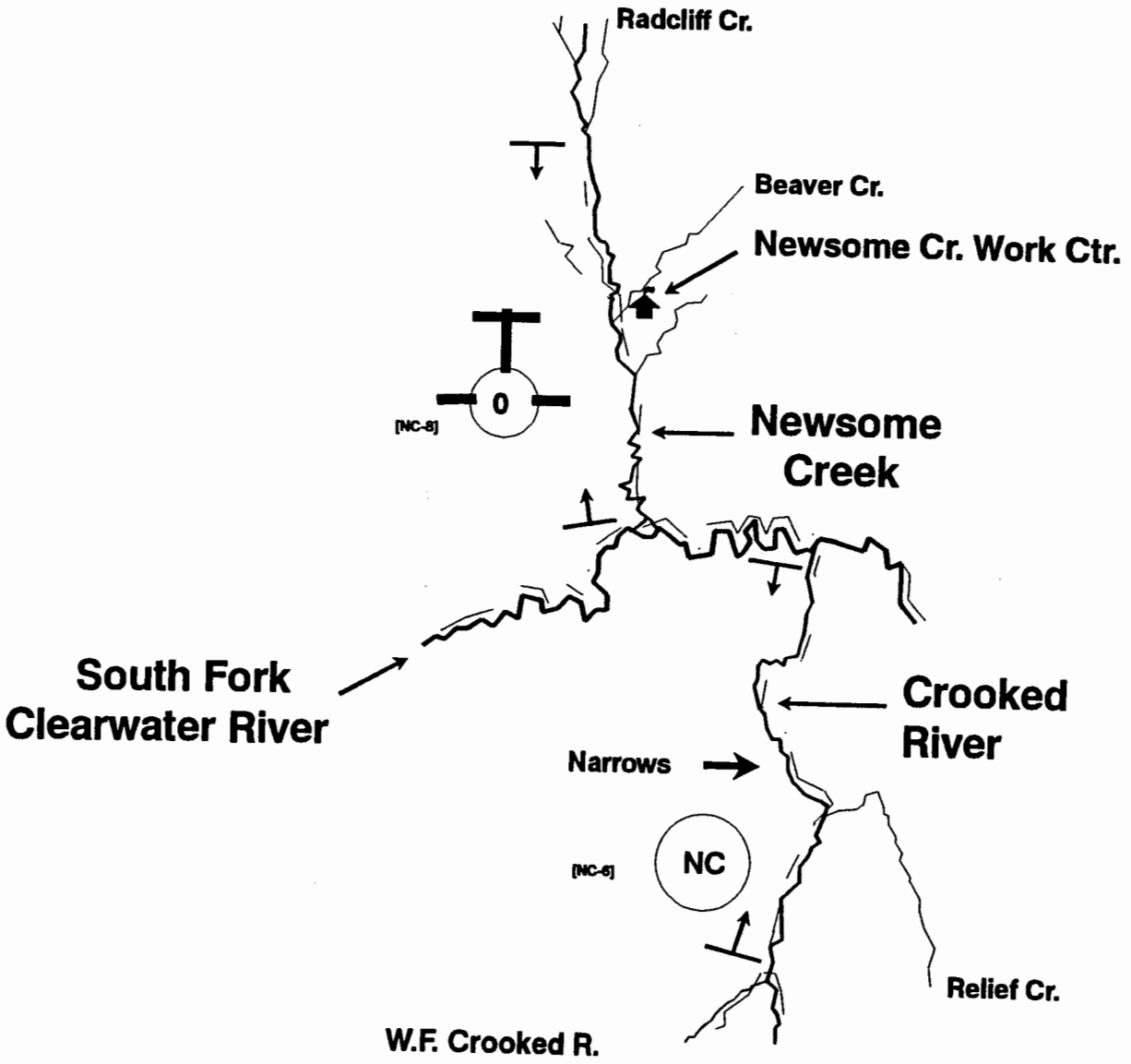


MAP-14

DRAINAGE Clearwater River
STREAM Crooked River & Newsome Creek
OBSERVATION CONDITIONS
TIMING Early On Time Late

SURVEY DATE 9/8/92
MAP SCALE 0.85 cm = 1 mile
OBSERVER Schriever
REMARKS Ground - Helicopter

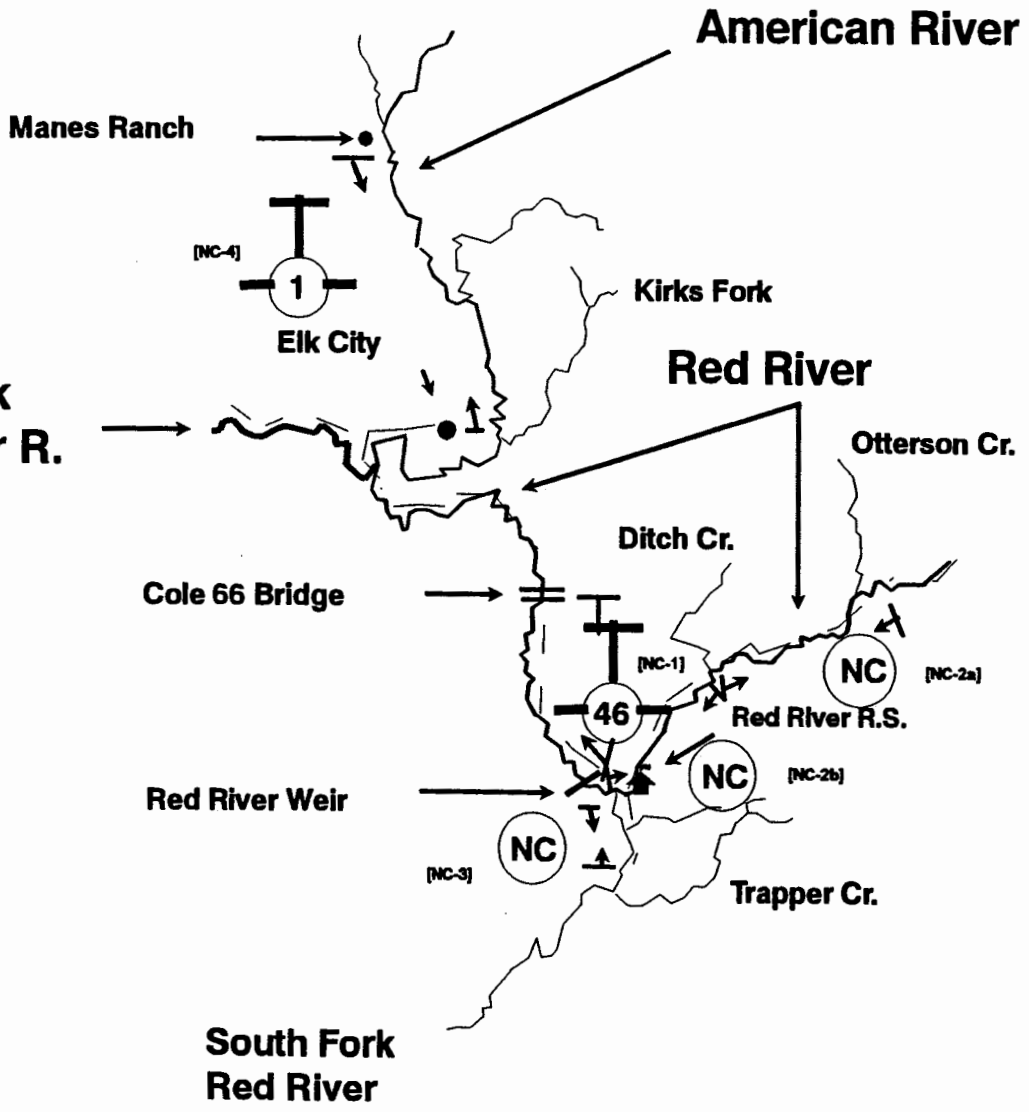
The entire Crooked River was counted from the ground by research staff; 51 redds observed.



MAP-15

DRAINAGE Clearwater River
STREAM Red R. and American River
OBSERVATION CONDITIONS
TIMING Early On Time Late

SURVEY DATE 9/8/92
MAP SCALE 0.75 cm = 1 mile
OBSERVER Schriever
REMARKS Helicopter and Ground



Number of Chinnok Salmon released above weir:

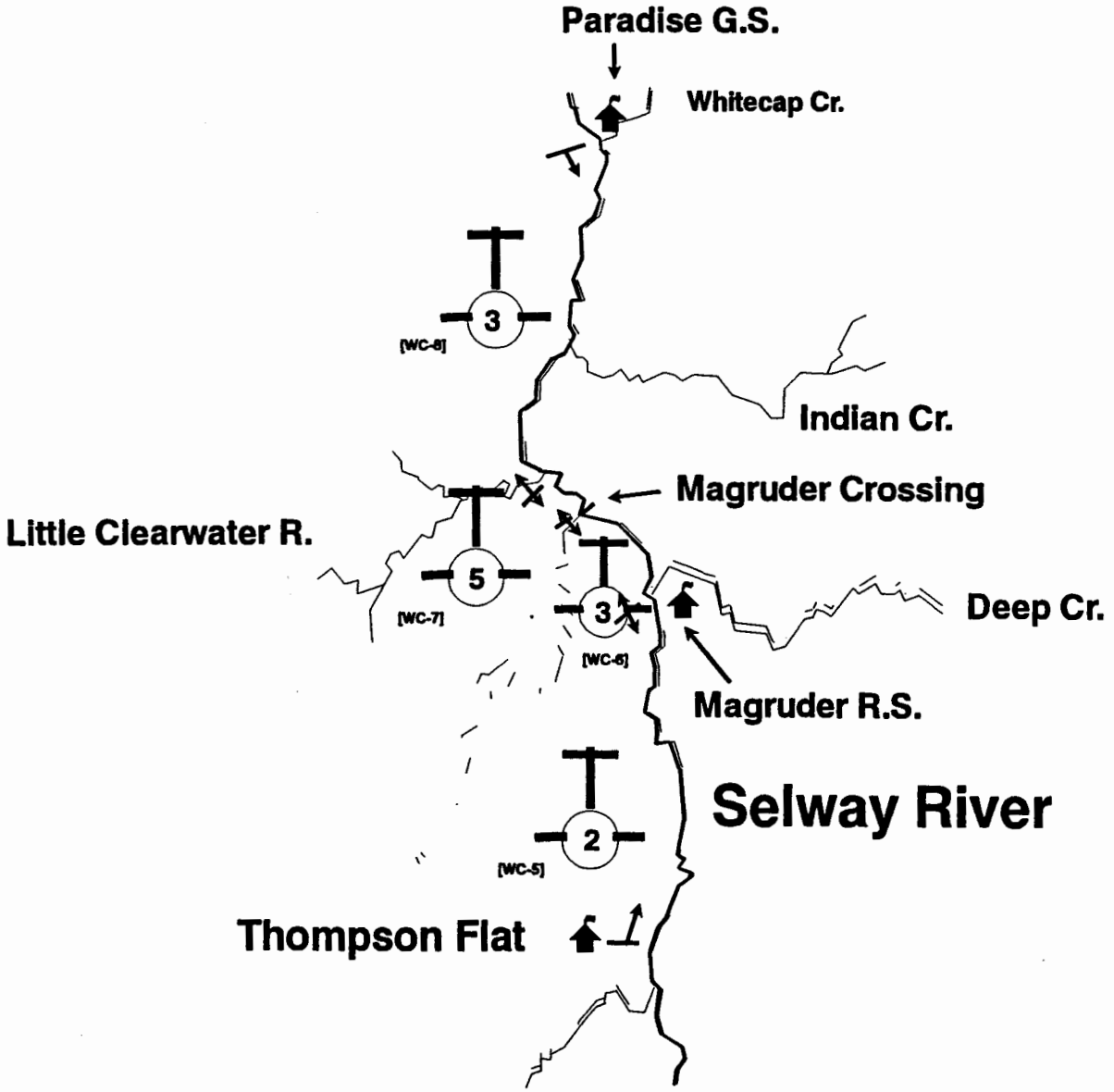
Males	12
Jacks	4
Females	10

Total trap count = 39

MAP-16

DRAINAGE Clearwater River
STREAM Upper Selway River
OBSERVATION CONDITIONS
TIMING Early On Time Late

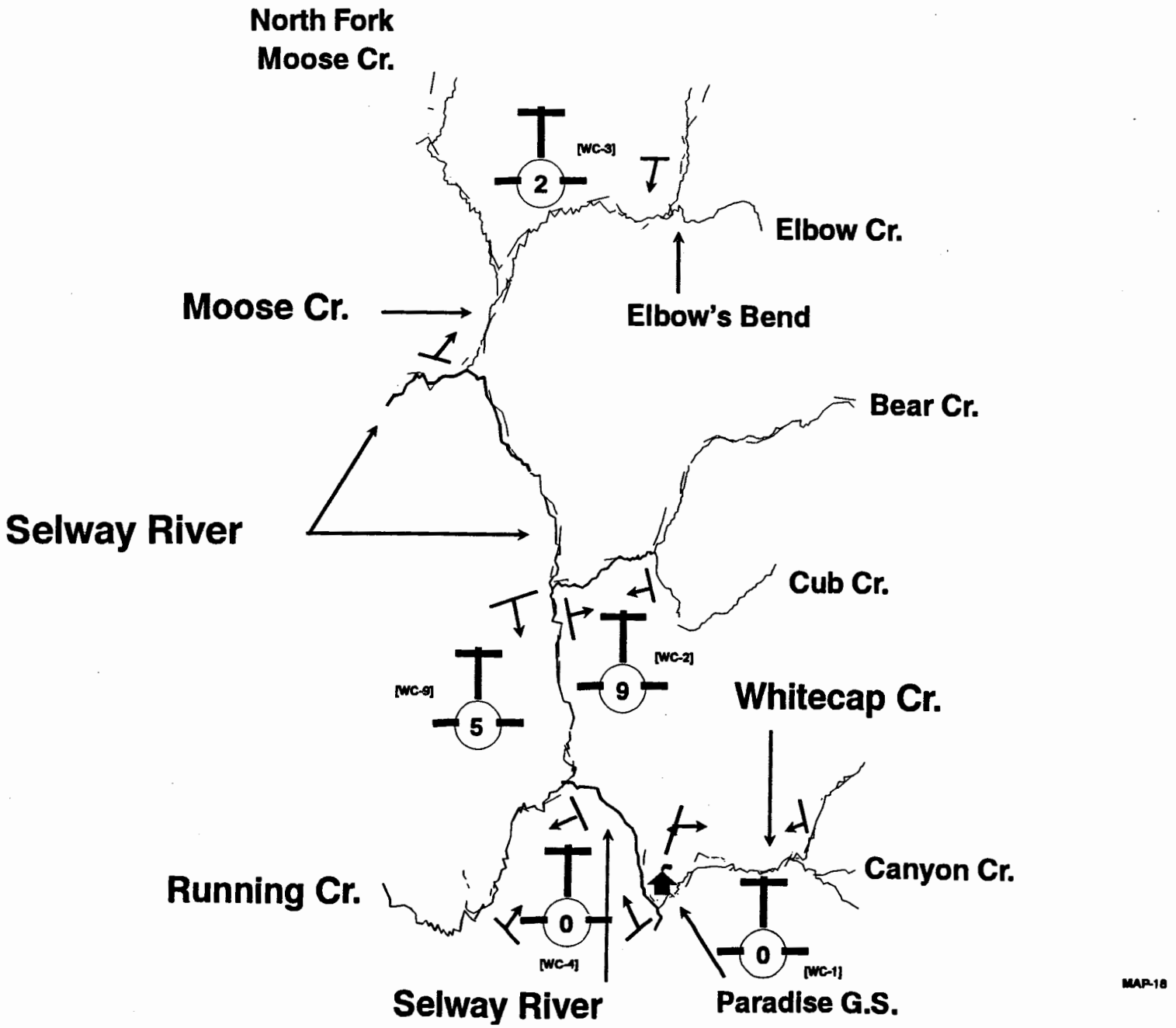
SURVEY DATE 9/9/92
MAP SCALE 0.85 cm = 1 mile
OBSERVER Schriever
REMARKS Helicopter and Ground



MAP-17

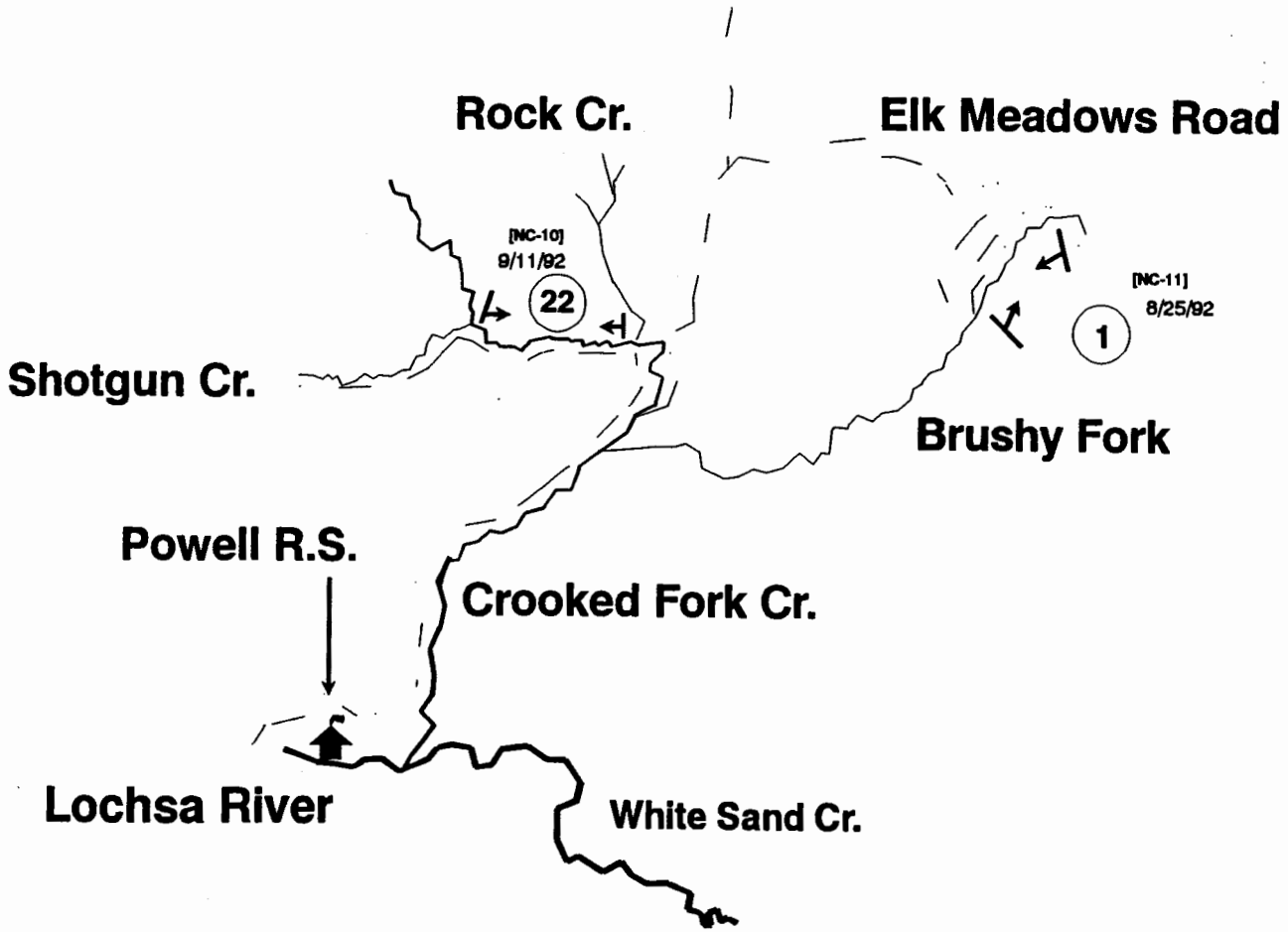
DRAINAGE Clearwater River
STREAM Selway River & tributaries
OBSERVATION CONDITIONS
TIMING Early On Time Late

SURVEY DATE 9/9/92
MAP SCALE 0.65 cm = 1 mile
OBSERVER Schriever
REMARKS Helicopter



DRAINAGE Clearwater River
STREAM Crooked Fork & Brushy Fork
OBSERVATION CONDITIONS
TIMING Early On Time Late

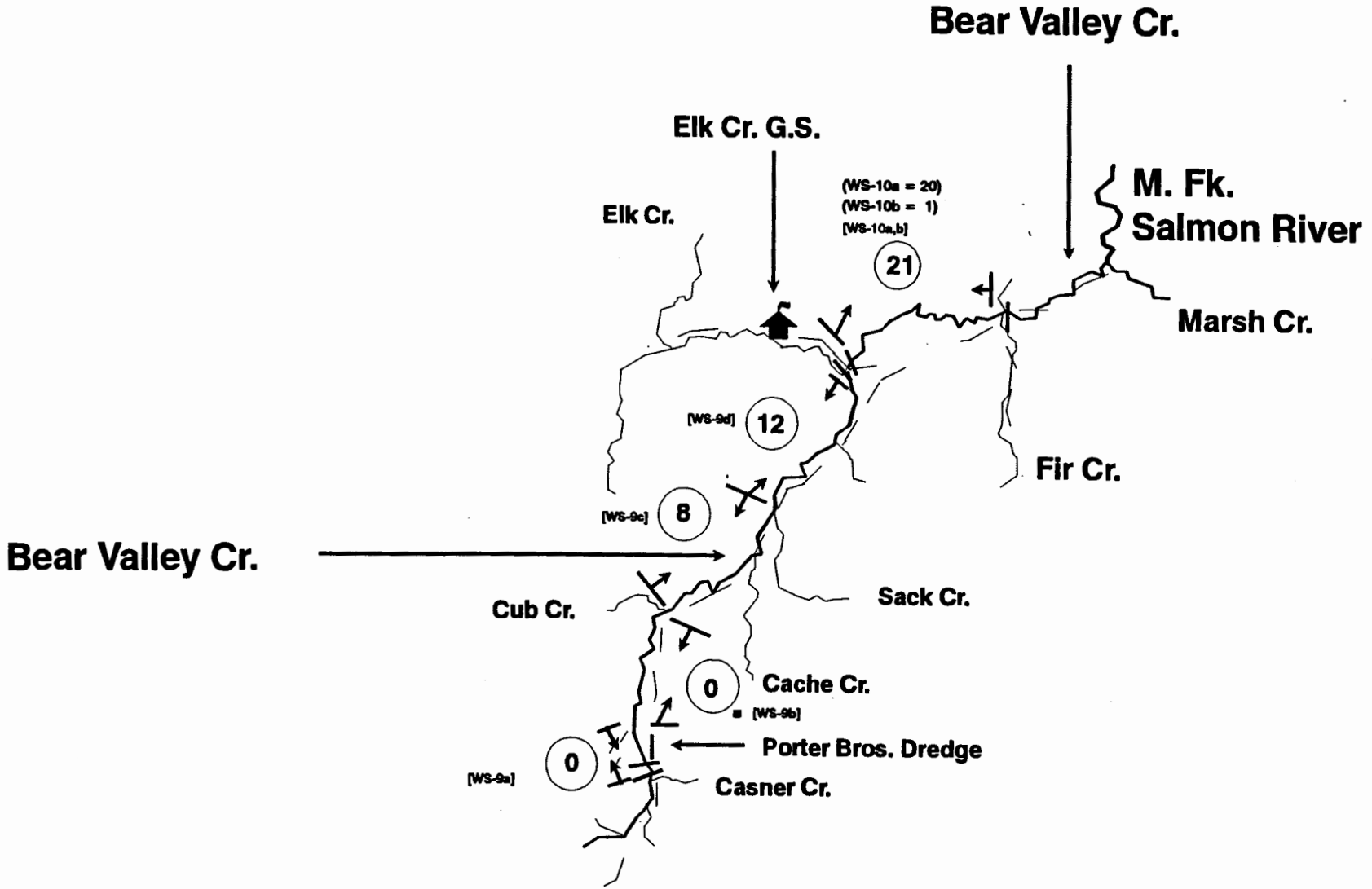
SURVEY DATE Indicated
MAP SCALE 0.95 cm = 1 mile
OBSERVER Schriever
REMARKS Ground



MAP-19

DRAINAGE Middle Fork Salmon River
STREAM Bear Valley Creek
OBSERVATION CONDITIONS
TIMING Early On Time Late

SURVEY DATE 8/25-26/92
MAP SCALE 0.90 cm = 1 mile
OBSERVER Holubetz
REMARKS Ground



G-21

MAP-20

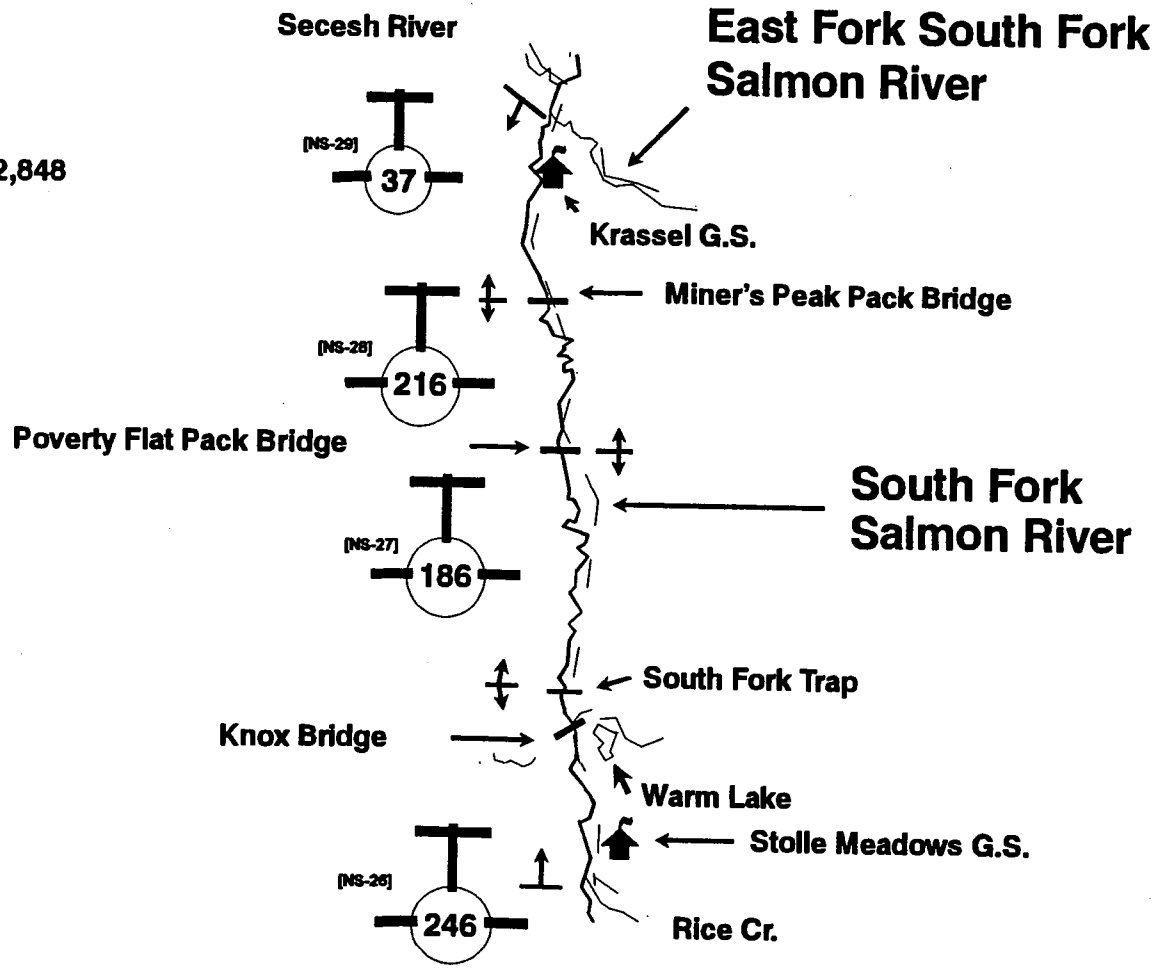
DRAINAGE Salmon River
STREAM South Fork Salmon River
OBSERVATION CONDITIONS
TIMING Early On Time Late

SURVEY DATE 9/10/82
MAP SCALE 0.40 cm = 1 mile
OBSERVER Anderson
REMARKS Helicopter

Number of Chinook Salmon released above South Fork Salmon Trap:

Males	983
Jacks	125
Females	723

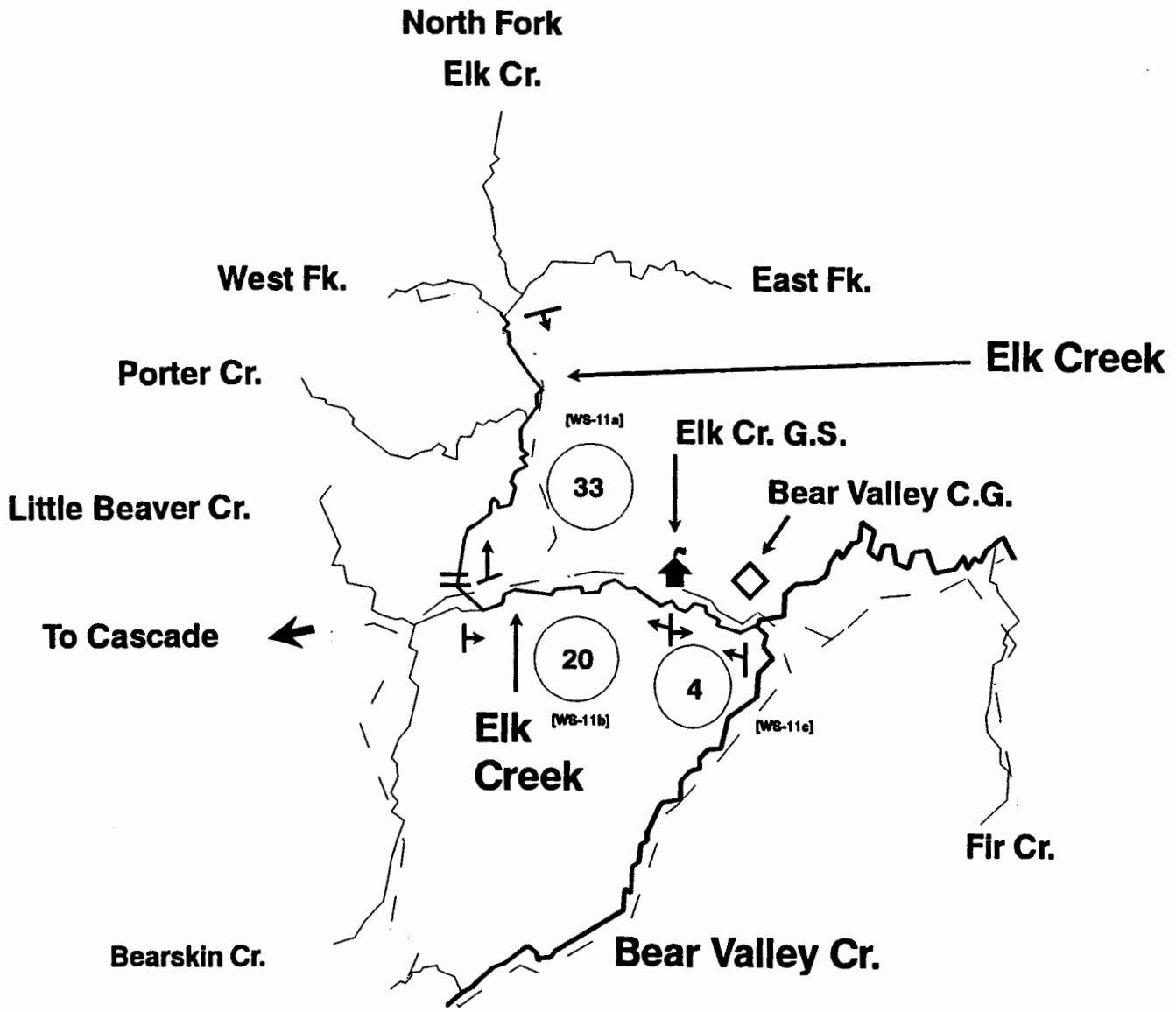
Total trap count = 2,848



MAP-21

DRAINAGE Middle Fork Salmon River
STREAM Elk Creek
OBSERVATION CONDITIONS
TIMING Early On Time Late

SURVEY DATE 8/26/92
MAP SCALE 1.3 cm = 1 mile
OBSERVER Holubetz
REMARKS Ground

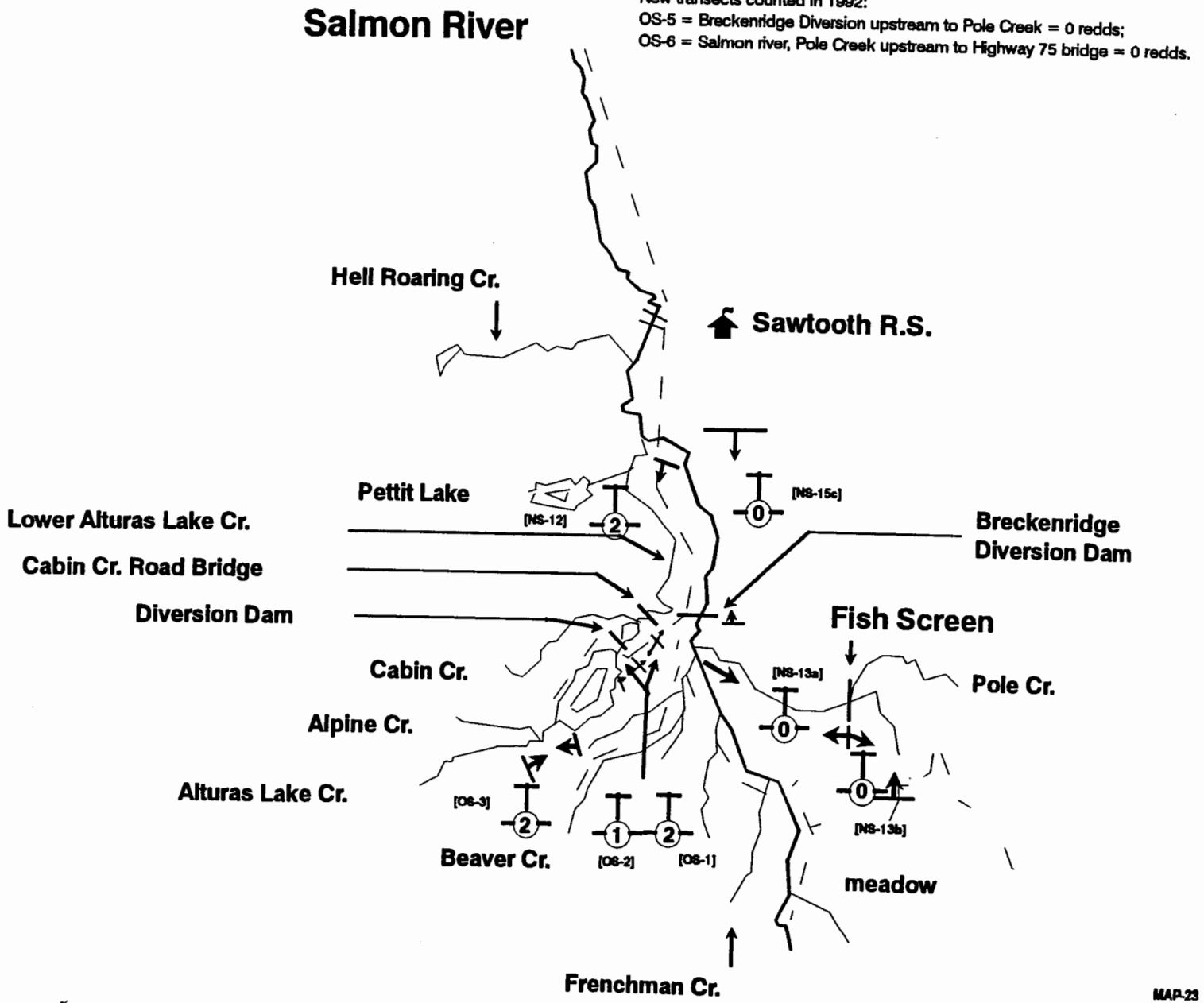


MAP-22

DRAINAGE Salmon River
STREAM Salmon R. & Tributaries
OBSERVATION CONDITIONS
TIMING Early On Time Late

SURVEY DATE 9/1/92
MAP SCALE 0.78 cm = 1 mile
OBSERVER Lukens, Liter
REMARKS Helicopter

New transects counted in 1992:
OS-5 = Breckenridge Diversion upstream to Pole Creek = 0 redds;
OS-6 = Salmon river, Pole Creek upstream to Highway 75 bridge = 0 redds.



MAP-23

Submitted by:

Peter F. Hassemer
Senior Fishery Research Biologist

Approved by:

IDAHO DEPARTMENT OF FISH AND GAME

Steven M. Huffaker, Chief
Fisheries Bureau

Dexter R. Pitman
Anadromous Fisheries Manager